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ABSTRACT

In September 1972, a federally-funded 3-day institute was held, under the auspices of the Drexel University Graduate School of Library Science, to acquaint librarians from local State and Regional public libraries with current developments in the cable television field as they affect library planning and activities. The program utilized several different formats: formal presentations with reactor panels, hands-on experience with videotape equipment, a videotaped case study and role playing activity, and small group discussions of participants' current activities and problems with cable TV. Panels dealt with assessing information needs in a given community, ordinances and franchises, the regulatory process, networking via cable, and the Interactive Cable System (TICCIT). This report provides a summary of the presentations and panel discussions and a description of the videotaped role playing activity "Cable Comes to Midtown." (SL)

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Cable Television for Librarians

Brigitte L. Kenney
Issue Editor

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Introduction

Brigitte L. Kenney

During September 1972, over one hundred librarians from thirty-five states were brought together to learn about applications of cable television to libraries. The U.S. Office of Education, Bureau of Libraries and Learning Resources, funded the three-day Institute, which was held at the Sheraton Hotel in Philadelphia, under the direction of Brigitte L. Kenney, Assistant Professor, Graduate School of Library Science, Drexel University. The Institute was held under the auspices of the Graduate School of Library Science of Drexel University.

The chief purpose of the Institute was to acquaint librarians from state libraries and other state and regional library agencies, as well as personnel from public libraries, with current developments in the cable field as they affect library planning and activities. Another purpose was to present librarians with a conference format and materials which they could use to conduct their own meetings on a state or regional level.

Cable communications have become increasingly important in recent years, since FCC regulations have permitted cable installation for larger cities; these allow the transfer of a wide range of information programs and materials directly to home viewers. Particularly important is the possibility of extending service to persons not well served by conventional library services—the elderly, the handicapped, and the disadvantaged—through a familiar medium to which they now have access. Research shows that in urban, inner-city areas information is more readily absorbed from television than from reading. Libraries must involve themselves in planning the use of the public access channels recently awarded by the FCC. Not only can conventional library programs be transmitted to clients' homes, but CATV makes possible new services and programs which can include display of printed or graphic materials and art objects, and video-taped transmission of community meetings, local political rallies, consumer information and public affairs programs. The university without walls can become a reality with cable television and provide continuous educational information for those unable to

Introduction

participate in a traditional learning program.

Two-way cable communication permits the client to interact with a data base, a library, a group or an individual, and express his views, thus learning and attaining a greater degree of self-fulfillment.

Interconnecting cable systems via satellite or other communications links can make information transfer by libraries speedier, more efficient and, most likely, less expensive. Cable communication is potentially the most important medium for interconnecting information resources on regional and national levels.

Thus far, librarians have had little opportunity to explore the potential of, and develop skills in, this medium. The Institute was a first step in this direction; if it was successful perhaps subsequent institutes will be held throughout the U.S. to make this training more available.

We hope that the following pages will be helpful in aiding librarians in their planning for the use of cable television. The potential of this medium, a broad information highway of the future, is great indeed; librarians must take advantage of the opportunities available **now** to reach people who have not been reached before, as well as to acquaint themselves with the possibilities of interconnecting libraries by cable and satellite for improved information transfer. If these published proceedings of the Institute help achieve better understanding of this new communications medium, and if the enthusiasm generated by conference participants can be transmitted by means of these printed words, then we will have achieved what we set out to do.

Brigitte L. Kenney
Director

Institute on Cable Television for Librarians
November 1972

Procedures

After being selected for the Institute, participants were asked to indicate what types of information they would like to have presented to them, and the program was designed, based on these responses. Participants were particularly interested in networking via cable, library programming, the process of obtaining optimal ordinances and franchises, and community organization for cable. The program used a number of different formats, ranging from formal presentations with reactor panels to hands-on experience with video tape equipment, and from a video taped case study, which was played back and discussed by participants, to small group discussions. Panels dealt with assessing information needs in a given community, ordinances and franchises, and the regulatory process.

A great deal of interaction took place throughout the Institute. Each participant was asked to bring materials and video tapes to the meeting and to talk about activities in his community or state; many people responded to this request with enthusiasm. Resource persons as well as participants shared what they knew with one another in a spirit of give-and-take rather unusual for as large a group as this.

Resource persons were chosen for their expertise and their ability to communicate well what they knew; most are involved in cable activities on the national level and brought a great deal of solid, practical information to the audience.

The entire Institute was video taped in order to facilitate the provision of program material for workshops and institutes which others may wish to conduct. Video tapes were made for all program components; complete information about prices, etc., are available from the director.

Evaluation

Institute participants were asked to evaluate the experience they had. Each program component was rated separately and an overall rating for the entire conference was also given. Most participants felt that the Institute had been excellent, and that they had obtained much valuable information immediately useful to them. Many commented favorably on the outstanding speakers, the format, and the organization of the Institute.

Acknowledgements

Grateful acknowledgement is made to Mr. Burton E. Lamkin, Assistant Commissioner of Education, HEW; Mr. Frank Stevens, Bureau of Libraries and Learning Resources; and Miss Evelyn Mullen, Program Officer, Region III, U.S. Office of Education, for their vision in funding this Institute, their assistance in planning and carrying out the objectives, and their helpfulness all along the way.

The Institute staffers, consisting of Mrs. Lee Lourea, Mr. Robert W. Ditmer, Mr. Charles Longenecker, Mr. Thomas Vogel, and Mr. William McFadden, deserve special recognition for their willingness to work above and beyond the call of duty to make the Institute a success.

Program Notes

The **Institute on Cable Television for Librarians** was held September 17–20, 1972 at the Sheraton Hotel, Philadelphia, Pa.

Sunday, September 17

2:00 – 3:30 P.M.	Opening Session: Opening remarks and welcoming speeches by Guy G. Garrison, Brigitte L. Kenney, and Evelyn D. Mullen were followed by the main address, **Cable Television Primer** by Wallace C. Briscoe.
3:45 – 5:30 P.M.	Mini-workshop: **How to Use Half-Inch Videotape Equipment** conducted by Joseph Gudonis. The hands-on demonstration was preceded by a brief introduction on equipment and production by Mr. Gudonis.
7:00 – 9:30 P.M.	Dinner meeting: Keynote Address, **Coming Issues in Cable** by Ralph Lee Smith.

Monday, September 18

9:00 – 10:30 A.M.	Panel: **Identifying User Needs.**
10:45 – 12:00 A.M.	Panel: **Organizing the Community.**
1:00 – 2:00 P.M.	Video tape showing
2:00 – 3:30 P.M.	Panel: **Ordinances and Franchises**
3:45 – 5:30 P.M.	Open Forum: **What Are You Doing?** consisted of 5-minute presentations by participants. Attendees were encouraged to bring something of their own they were planning or doing—no more than 5 minutes long.

8:00 – 9:30 P.M.	Evening Session: **Status of Federal, State, & Local Regulations** by Frank Norwood.

Tuesday, September 19

9:00 – 10:30 A.M.	**A Case Study of Midtown,** a video taped role-playing, simulating a meeting to discuss an inadequate cable ordinance; State I – Warm-up (15 min.); Stage II – Role-playing (20 min.); Stage III – Report writing (15 min.) Participants divided into five groups.
10:45 – 12:00 A.M.	**Playback and Discussion of Case Study.**
1:00 – 2:00 P.M.	Video tape showing
2:00 – 3:30 P.M.	**Interactive Cable System** (TICCIT) by Sid Polk.
3:45 – 5:30 P.M.	Open Forum: **What Are You Doing? What Are Your Concerns?** (continued from Monday)
7:00 – 9:30 P.M.	Dinner Meeting: **Networking Via Cable: Problems and Prospects** by Russell Shank.

Wednesday, September 20

9:00 – 10:30 A.M.	Discussion groups: **What Can Libraries Do?** Four discussion groups, each with a resource person: Group A – no cable, just beginning; Group B – have old cable system, how can they improve; Group C – in midst of negotiations, pitfalls and successes; Group D – have cable, what to do with it. Each participant in the conference joined one of the four groups depending on his/her library's situation.
11:00 – 12:00 A.M.	Conference Summary: **What Did It Mean?** Reports from discussion groups plus summary by Frank Norwood.

Cable Television Primer

Wallace C. Briscoe

I would like to start with the premise, contrary to George Allen's oft-quoted views, that the future is not necessarily now. I think that we are in a real danger, if we are so preoccupied with the future, that we ignore the present upon which a sound foundation for the future must be built. Some of what we have to do is plain hard work—mundane tasks if you will—but planning is that way. Much detail work has to be done.

Contrary to some opinions I have heard expressed just today, cable is not a new industry. It came into existence about ten minutes after the first television transmitter went on the air and someone realized that signals could not be received clearly by some people living over the hill or too far away. Quickly somebody figured out how to put up a simple antenna on that hill and run a wire down to the valley where the TV sets were. At that time this seemed a very simple process, but it was only about thirty minutes later that the realization came just how complex a process it really was.

Now we are twenty-four years down the line from those first efforts and we still have problems. Technology allows us to talk about a very substantial number of channels going in one direction, while we are not yet at the point where we can be quite so sanguine about the number of channels coming back in the other direction. We have our second or third generation of engineers hard at work trying to solve these problems. Once they are solved there will be many more applications we can discuss together.

As to our industry's involvement in some of the things which interest you, let me go back a few years and describe to you a controversy in which we found ourselves. This started in a very interesting way for

Wallace C. Briscoe is Managing Director of the National Cable Television Association me. I came to the National Cable Television Association thinking that cable had a very different function from broadcasting. I did not know exactly how it would realize its great potential, but I knew that local program origination was a very significant ingredient. One thing you learn when you are a broadcaster is that you can no longer think of yourself as covering a city only, but that your area is as great as that of your broadcast signal. In such a situation you cannot spend a lot of time on local problems; you may be covering as many as thirty counties. This bothered me then, and it bothers me now. I recognize, however, that this is one of the realities of broadcasting which has to show a profit first and foremost. Only after that can it talk in terms of the public interest.

I think the same thing applies to cable television. We do, however, enjoy the opportunity to use additional channels without preempting anything else. That is also where we were having problems. In 1965, the Federal Communications Commission submitted legislation to regulate cable television. Contained in the bill was a prohibition against any form of local origination by cable systems. This was in response to grave concerns by the broadcast industry that cable would begin to take over their audiences, that we would fragment them, and that we would be insufferable competitors by providing too much choice to the people in the communities they served. We were never able to get that provision out of the bill which finally died in the House Rules Committee.

This same FCC decided to make it mandatory for all systems of thirty-five hundred or more subscribers to originate local programming. This was done, I think, in response to our attack on their legislative proposal, in which we actively began to promote local origination capability. Also, over a period of about four years, some seven hundred systems—about 20 to 30 percent of the industry—had begun program origination.

This kind of relationship has been going on with the FCC for as long as the cable industry has existed. Uneven regulation, adversary regulation, protectionist regulation have been encountered. We have been fighting for our very lives for most of the last eight years. During five of these we have been in a very deep freeze. During this period we have been prevented from operating in the top 100 markets where some 70 to 75 percent of the population lives. But now we think we see some daylight.

The regulations under which we now operate are certainly not what we would have written, are certainly not designed to let us develop quickly in the areas where we believe there are more people, more areas of interest, and more needs to be served. But we feel that, at least, they are adequate to start us moving in that direction. I would predict that there are probably going to be some colossal failures in some of these major markets, but there will be some very substantial and very impressive successes also. There are a lot of untried courses yet to be developed. I think it's fair to say that the status of our industry today, the shape it's beginning to take, is largely an outgrowth of that 1965 controversy surrounding the area of local program origination.

Now let's go forward a few years. About four years ago I persuaded the National Cable Television Association to develop a program to seek out users of public service broadcast time—those people who are normally accorded free time on broadcast facilities, such as charitable and civic organizations, fund-raising people, etc. We had a conference that we called PS/PT which stood for Public Service in Prime Time. We put emphasis on prime time because so many of the public service users had grown accustomed to finding their messages near or after a sermonette. This is not really very satisfying to the people who are interested in getting their message on the air. Cable's ability to put on additional channels without preempting something that is already on the air is unique and it is one that should be developed; this was our message in the PS/PT conference.

We held two of these conferences and attracted over one hundred people to the first meeting. These were generally people who were involved with public affairs offices of government agencies, with some of the big fund raising drives in the country, and a few of these people really picked up this idea and ran with it. The U.S. Department of Labor was one. A little bit later the Department of Justice became involved through the Community Relations Service, and they've done a rather sensational job in some areas. The March of Dimes, interestingly enough, was the first major fund raising organization to pick up the concept, and they produced a very impressive package of materials available to all their chapters.

Our message was this: "Here's a medium and we can't make very many general statements about it. We can tell you those systems that we now believe to have origination capability, but we can't tell you what shape or what size or what kind of material to give them. But you have field forces, you have volunteers. Send them to the local

CATV system, have them sit down with the people who operate that system, and figure out what you can do together."

There have been a number of successes through this process, although unfortunately, we don't even know about many of them. We know that things have been done in some areas, but we don't know exactly what, or how, or with what results, because we really were not trying to develop a track record or a compilation of information. What we were really trying to do was to get somebody started developing a new process of communications involving people at the local level. To that extent we know that we were successful.

If I make no other point today, let me make just one. Cable television did not spring full grown and mature into being, and it's not there yet. We started with an industry that was capable of receiving one channel and distributing it to a few homes. Later we developed three-channel equipment, and five-channel equipment, and that was the end of the world—three networks, an educational station, and an independent one—What more could anybody possibly want? But today we're talking in terms of systems that can be built with the capability of delivering thirty or forty channels downstream. We'll soon be talking about systems that can deliver that many in both directions, but we are not there yet, and that is one of the points that needs to be made at this meeting. Do understand when you begin planning what the industry really is, and begin today to develop ways to use what is here rather than waiting for what will be here, or might be here, or should be here. And it's only by beginning utilization of what is here that we can all make sure that some day we will be where we want to be, with the basis for development—the financing, the public acceptance, and all of the other factors—at hand.

Along the way we've drawn a lot of comment, we've been involved in a lot of controversy, and quite candidly, I think I can sum up our controversy this way: no one for the past eight or ten years, at least, has denied that CATV will succeed, that it will become cable television and that it will become the wired city and ultimately the wired nation. The major question all these years has been, Who is going to own it? And this has put us in the position, as a very small industry compared to the others, of facing adversaries like the telephone industry, the broadcast industry, and the motion picture industry. These have been our three principal adversaries over the years, each of whom would like to own this industry and the capability that it represents. I think the CATV industry has done a remarkable job of keeping its head above water. The people who began developing this industry have managed to hold onto a substantial part of it. I think it's fair to say that today about 40 percent of it is owned by the broadcast industry, portions of which came into this industry for a variety of reasons. Two basic ones are belief in CATV's future, and a hedge on their present investments against deterioration as a result of the advent of CATV and its future possibilities.

So, that's where we are today. We have great potential. That potential is only going to be realized through the development of the uses that are unique to cable, and that's where people in this audience come in. During the past three years there has been a proliferation of interest in cable as the technology has developed. Again let me emphasize that advanced technology is in place only in limited situations today. It will be here in larger quantities as soon as the major market problems are overcome, and cable finds its way into viable operation in those markets. One of the frustrations that we share, and must work together to overcome, is the inability to generalize on what can be done by educators, librarians, and CATV operators in concert.

CATV communities differ in many ways. In some, all of the currently available channels are in use. In others, several channels are available. Many systems obviously are old, and until they are rebuilt, cannot realistically be expected to provide many of the services that somehow are being taken for granted today. Still, they are performing a valuable service to their communities. Reception of broadcast television has always been the basic function of cable television and will continue to be for a long time. It is that function which makes cable a viable business, and that can sustain the cost of research and development that is beginning to make possible the cooperative efforts we are now initiating. It is this receptive function that will attract subscriber support, thus placing cable in a sufficient number of homes to make it an attractive conduit for the use of educators, citizen groups, libraries, cities, and other users we probably can't even identify today. While we are evolving into the wired nation that we envision there is no reason that we cannot begin preparing for it together, learning each other's needs and limitations, and planning for progressive implementation of new capability as it becomes reality.

Now let me be more specific and get to one of my frustrations. One of the most disturbing things today is the amount of time and money and effort expended in production of programming that is used briefly in one location and then lost forever. One of the most disturbing things to people who are looking at cable television as a conduit for educational programming is who is going to pay for the cost of this programming. How much better it would be if there were a central source of information on what has been done and what is being done, and if mechanics were set up for sharing programs. Immediately, the majority of the people currently involved in reinventing the wheel could direct their talents elsewhere, and the money committed could be productively allocated to new fields.

Another of my frustrations is that there seems to be, in some areas, a great deal more preoccupation with development of programs than in the dissemination of the those programs. We had this rather bitter experience in trying to develop a program of instruction to train CATV technicians. Once the program was developed and offered to other institutions their response was a bid for development of a similar program. While I can understand that some of this is justified as part of the learning process, it is still terribly frustrating. It seems to me that dissipation of our national resources, great as they are, is a luxury we can no longer afford.

I am not for one moment suggesting some kind of a super bureaucratic overseer. What I am suggesting is the establishment of a central repository of information of available materials on projects underway, so that locally autonomous institutions may screen proposals to determine duplication and help direct constructive efforts. Then, as interchange capability improves through standardization and other techniques, there may not even be a need for a central library of tapes and films. The information center will be the indispensable element of the system. As educational stations evolve—as I think they inevitably will—into distribution centers (in addition to their broadcast functions), they will be the logical focal points for storage and programming, and I would assume that a secondary focal point, if not a primary point, would be the local library, for both storage and cataloging of programs. There we have two of the three elements needed to open up the flow of programs and information.

The third part is interconnection. It seems to me that the nation's libraries can well serve as the source of information that will enable everyone involved to make better and more useful program decisions once they are interconnected for exchange of digital information. While we should all plan in ways which will exploit future technology, we are wasting a lot of time waiting for future capability to be installed. There is a great deal that we can be doing now, even with the limited capability available. If indeed our real interests are in effectively disseminating information, then let's get on with it.

Present capacity may seem pedestrian by comparison with the two-way interactive systems that will come, but two-way capability is here today. Pick up your telephone and call the cable system, or call the library, or call the point from which you want information. Distribution of information can be accomplished one-way right now with two-way communication by telephone that's been in place in every home in the country for years. We'll get the rest of the way a little later.

The libraries have a major asset that is limited in accessibility, and that is your files of information. I don't pretend to have any answers right now or models for you to follow, but I do see a lot of the problems, and the major one I see is the need for a quarterback, if there is ever to be a constructive team effort in dissemination of information. Why not the nation's libraries?

Equipment and Production

Joseph Gudonis

A mini workshop followed this brief presentation by Mr. Gudonis. He and four Institute staff technicians divided the participants into small groups, explained the use of video tape equipment (half-inch portable Sony machines), and showed participants how to operate the equipment. There was practice in focusing, zooming, and playback, and many technical questions were answered during that time. Mr. Gudonis suggested a publication put out by the 3M Corporation entitled **Producer's Manual.**

It seems that everywhere you look nowadays you see television equipment. Even department stores sell it. But suppose you are at work one day, and a meeting is held, and your bosses tell you that they are going to start using television in the business, and since you are interested in photography you will be in charge of the equipment. Your first thought may be, "Okay, I've got a TV at home, so I should be able to handle it." But then you notice the price tag, and suddenly you are seized with an attack of "equiphobia", whereupon you go home and proceed to lose a night's sleep worrying about your expensive monster. Fear of video equipment doesn't have to exist, and once you really become acquainted with the equipment, you are well on the way to being cured.

There are different kinds of video machines: two-inch, one-inch, half-inch, and even quarter-inch, to say nothing of the video cassettes that are now being introduced to the market. A two-inch machine uses two-inch video tape. It's as simple as that. Broadcasters use two-inch tape and large, expensive equipment because they have no choice. The FCC requires that they provide very stable pictures and quality reproduction. Their equipment is designed accordingly, which leaves a great

Joseph Gudonis is a producer-engineer in the Department of Medical Communications at Temple University Health Sciences Center.

deal of less expensive equipment for us to choose from, since we don't have to be concerned with such a high degree of stability.

When you record music on an audio tape recorder you use a higher speed, because that way you get better fidelity. Similarly, a one-inch video tape machine runs at a higher speed in order to provide a higher frequency response and, consequently, greater resolution: the higher the frequency response, the sharper the picture.

At present, one-inch machines are interchangeable. Whatever format you eventually decide on – one-inch, half-inch, etc. – you will want to stick with it so that it remains compatible with your machines. Duplicating can then be done by transferring the output from one type of machine to the input of another type – from one-inch to half-inch, for example.

One-inch machines are fairly heavy. They weigh between 40 and 180 pounds. They are called "portable" because you can move them from one place to another, not because they're convenient to move. Half-inch machines are usually lighter and smaller, between 15 and 60 pounds. They have a slower reading speed and, consequently, less resolution. Quarter-inch machines are lighter and smaller still, but their resolution is correspondingly less: only about 200 to 250 lines, as compared with 300 or 400 for half-inch or one-inch machines.

How important the number of lines is depends on your purpose in using the equipment. It is very important if you want to look at something like a chart or a graph, because then you will want to see each letter or line as clearly as possible.

Quality and other factors are important in determining the prices for such equipment. Color machines are more expensive than black-and-white machines, for example. One-inch machines can cost as much as $20,000, but good one-inch machines can also be bought for as little as $4,000. Half-inch and quarter-inch machines sell for between $500 and $3,000. These are video tape recorders (VTR) that I am talking about, of course. The price range for cameras is even wider. A cheap one can be had for $150, but a good studio broadcast camera costs about $100,000.

The first consideration in trying to meet your needs is obviously budgetary. Once that has been settled, you should call the distributors in your area and make an appointment with a salesman. He should be able to assess your needs and give you some idea of what you should purchase. Of course, he may just be out to make a sale, so it is wise to get several different price quotations. Shop around and compare.

The next question to consider is reliability. In this connection, I would recommend that you get a copy of the January 1970 issue of **Educational Products Report**, which carried an analysis of many video tape machines. Perhap even more important than reliability is the kind of service contract that you can obtain. There are several questions you should ask yourself in this regard. First, are parts for the machine which you want to buy easily available? Can the servicing agency guarantee prompt service? Will they, if necessary, lend you equipment? You can usually estimate that during the first year the cost of service will amount to 10 percent of the original price of the equipment. For each year following that the figure will probably increase to about 20 percent, and it is wise to put that money aside in advance.

Finally, you have to decide just what kind of equipment you need. Color, as I have already indicated, is expensive. A color camera may cost as much as $4,500, compared with $600 for a black-and-white camera. Color also involves more lights, which means more electrical wiring, resulting in greater financial outlay. So you have to decide beforehand whether you really need color or whether black-and-white would be adequate. And remember, the more equipment you use, the more expensive and complicated matters become. Just having more than one camera involves using special equipment. And always think ahead, so that future expansion will be possible. Later on you may want to use a special effects generator. So at the start, you should make sure the camera you are buying has a special synchronizing input. How much training you need in order to use the equipment depends on how mechanical you are, how creative you are, and above all, how interested you are in using it.

Coming Issues in Cable

Ralph Lee Smith

Tonight I want to speak informally about some of the problems relating to the coming of cable and the "wired nation" to America. This is the context in which the discussions of this conference will be held, and I think that at least once we ought to back off and look at this larger context. What does cable look like today? How is it growing? Which features of the scene are perhaps detrimental to the uses which this conference will discuss? Which will promote those uses? What, if anything, should you do? What should you be worrying about apart from the simple problems, or not-so-simple problems, of information networking?

The first problem that I want to note is ignorance on the part of some persons and groups interested in using cable as to what cable really is and how it works. As Exhibit A I have here an article from the December 1971 issue of **Educational Broadcasting Review** entitled,"The Cooperative Use of Instructional Technology to Cope with the Crisis in Higher Education." It is a paper produced in approved scholarly format with many footnotes, and it was duly accepted and published by this leading journal. The authors are persons who hold distinguished positions in the field of educational television and educational communications.

The article reviews the problem of the rising costs of higher education, with which we are all painfully familiar. With regard to the State of Florida, which is the focus of their study, the authors recommend that the nine state universities be interconnected by a coaxial cable line. This line would run from Pensacola in the north, down past Tallahassee, to Gainesville, Orlando, and Jacksonville, and from Jacksonville down to Boca Raton and Miami, thus in

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effect, spanning the state from north to south. The actual route that the cable line would take is carefully drawn in on the map accompanying the article. With the cable line installed, educational programming could be interchanged among the universities. "A couple of years ago," the authors state, "such a project would not have been feasible. Today it is not only technologically feasible, but financially operationally feasible and essential."

In case you don't understand why this article is absurd, the most elementary fact about coaxial cable systems is that a visual signal cannot be transmitted by cable for a distance greater than ten or at the very most twenty miles. As signals travel along the cable they decrease in quality and in strength. Four or five amplifiers are installed per mile of trunk to bring the signals back up to strength, but the quality of the signals is further decreased as they pass through each of these amplifiers. After the signals have been, in the industry's language, "cascaded" through eight or ten miles of these amplifiers, their quality has dropped below acceptable levels of clarity and usefulness.

The Florida cable system described so glowingly in this article is strictly science fiction. It would, of course, be possible to create a broadband communications network in Florida or anywhere else by using cable systems for **local** distribution, and by distributing or exchanging materials among these systems by microwave and/or satellite. Such a system is utterly different technologically, economically, and functionally, from the Florida cable system described in this article. I realize that the publication of papers of this type is the road to academic advancement, and to that extent it performs a useful function for the author. The only trouble is that some people who read these things may take them seriously.

The first caution that I want to introduce, therefore, is to take the time to be adequately informed. Cable is an exceptionally complex issue, and pitfalls await those who try to plan without having a sufficient understanding of either the capabilities of the technology or the issues that it has stirred up.

The next problem I want to discuss is the difficulty involved in actually bringing into being various functions that the cable is technically capable of performing. Here is an interesting letter that bears on the point. I received it the other day from a student at Michigan State University in East Lansing. He says that a cable system has been established there which serves apartment complexes that house 1,200 married students at the University. The franchisee is National Cable Company, a subsidiary of LVO Cable.

LVO Cable is an **MSO**—a multisystem operator—which owns and runs cable systems in a number of cities. Its home offices are in Tulsa, Oklahoma.

A group of married students in these complexes got together and decided that they should try to originate some programming on the cable system that would be intended specifically for the married students living in the buildings. They expressed this wish to National Cable Company, and to their surprise the company showed great interest. To their even greater surprise the parent company, LVO Cable, promptly sent a man all the way from the home office in Tulsa. He brought with him a Sony camera, recorders, portapaks, and other equipment, which he immediately made available to the interested group for their project, and offered his own services to help them get things started. The man from LVO explained that the company had been trying to get local programming established on its various systems but had very little success. For example, the LVO representative said that the company owned a system in Tyler, Texas, which has 17,000 subscribers. LVO hired a complete crew and launched a schedule of local programming on this system, but the project soon collapsed because of apathy.

This, then, is the second caution that I want to emphasize, namely, that no one should be naive about the ease with which new uses of new communication forms can be brought into being. A lot of planning is involved and a lot of effort, and most of all, a lot of community involvement which, as all workers in the field of community action know, takes time and skill to build.

The kind of naivete that assumes that these things can be done easily has two unfortunate effects. First, it will cause the projects themselves to fail—projects that, if properly created and built, would have succeeded. Second, such naivete—and the failures it produces—plays into the hands of those who, because of shortsightedness, or for selfish reasons, are maintaining that these difficult things cannot be done at all with any genuine success, and should be ignored or dropped as realistic features of cable's potential. If the nay-sayers can convince city councils, public institutions such as schools and libraries, and community groups that this is so, they will achieve easier sailing for the more pedestrian and lucrative functions of the cable without having to be bothered with, or to invest in, other socially useful but time consuming and uneconomic uses of cable communications.

Caution number three has to do with the ways that cable will and will not be used as it comes to our cities and metropolitan areas. The caution is simply this: that basic policy decisions must be made if cable's promise is to be fulfilled, and the failure to face up to them and to make them will cause much of the medium's potential to be abridged or lost. A number of major controversies have already arisen that require policy decisions of this kind, and these controversies will grow rather than diminish during the next couple of years when more and more big cities take up the cable franchising issue.

I'll begin this subject by sketching for you how things used to be in cable's horse and buggy days, say, five to seven years ago. Almost all cable systems at that time were in small towns and rural areas. Their almost exclusive function was retransmission of over-the-air broadcast signals in areas where reception was poor. Cable franchises were often, or usually, given to the first party who came along and asked for them, and these prehistoric franchises specified little or nothing by way of public services to be performed by the system.

However, it didn't take the various municipalities long to notice that ten, fifteen, or twenty different parties were banging on their doors begging for franchises. The muncipalities reasoned, correctly, that there must be a lot of money in the business somewhere. The first reaction that many municipalities had was, Why not cut themselves in on the take? And that's what many of them did—they simply granted the franchise to the operator who offered the city the biggest slice of the pie, in the form of cash payments and franchise fees.

Needless to say, neither of these approaches to cable franchising bore any discernible relationship to the public interest. This issue sharpened up when it became increasingly clear to certain parties, including urban planners, educators, librarians, progressive city officials, and community group leaders, that a cable system is, in fact, a communications carrier of tremendous potential. Cable systems might be laid for the limited purpose of retransmission of broadcast signals, but once they are installed they constitute a communications medium that can perform many other functions.

In their continuing scramble for franchises, and in their many running battles with the broadcasting industry, cable operators themselves took up this theme, stimulating public interest in cable by setting forth the dazzling vision of "the wired city" and "the wired nation." By now, however, the chickens have come home to roost. Cities and municipalities now know about cable's potential, and they are asking that lot of this potential be written into cable franchises. The cablemen are starting to balk, particularly when it comes to the question of who pays for all the fabulous services of the wired nation. Increasingly, cable operators are saying, "Not me!" while municipalities are pressing for all they can get. This is one of the areas of rising controversy and tension.

Other issues are involved. Most of the nation's top 50 markets, and many of the markets 51 through 100, have good over-the-air reception. The best guess of most experts is that retransmission of over-the-air signals—the traditional function of cable—will not attract enough subscribers in such markets to make it profitable to wire them up. Additional programming and services of some kind will be necessary to attract enough subscribers in these markets. But the question is, What kinds of programming and services will do the trick, and how do you go about reestablishing the basis of profitability so that cable's old primary function becomes secondary? Most observers believe that these things will happen in major cities, but no one yet knows the path from here to there, or how profitable cable will ultimately be when the path has been traversed. This generates uncertainty and tension as operators jockey to protect uncertain profits, and civic forces press for expanded social uses of cable.

Observing these sharp cross currents, mayors and city councils are increasingly afraid to act quickly. There are, of course, many good reasons for moving carefully, not the least of which is that if you, as a city official, make a serious mistake you might be punished for it at the polls. Listening to all the different clamorings from so many quarters urging so many different courses of action, public officials are being cautious, and are initiating more and more elaborate procedures, including a lot of civic participation before granting a franchise.

That is the general background, As these tensions and struggles increase a lot of dead cats are starting to be thrown. I have brought a bagful of good smelly ones with me tonight. Let's pull a couple of them out and take a closer look.

Now, here is one that has a tag on it reading, "Anaheim, California." in Anaheim the city has issued an ordinance setting forth what it would like to have in the way of a cable system. The specifications of the ordinance include:

- tri-cable system—that is, a system with three cables laid side-by-side, to maximize system capacity;
- multiplicity of educational and public channels—not just one of each, as specified in FCC's new cable rules, but quite a few of each;
- reservation of one-third of the available cable channels for city use;
- special closed-circuit system to various municipal offices and buildings.

One of the bidders for the Anaheim franchise was Cypress Communications, a firm that has established a reputation for being one of the more progressive companies in the industry. In Dayton, Ohio and in Stockton, California this company made news by submitting proposals that would have given part ownership of the systems in those cities to local black groups. But in Anaheim, Cypress decided that the time had come to draw the line. It wrote to the City stating that it was withdrawing its application and asking that its $500 filing fee be returned. "We do this," Cypress wrote, "in the hope that the City will reassess the propriety of compelling its cable franchisee to render a host of noncompensatory communications services to the City as a condition of obtaining the franchise to conduct what is, at best, a speculative and risk laden business."

Now, the question in this controversy is, Who is right? Who has how much of the right on his side? Are both sides creating bargaining positions, or is one of them really in a position in which it would be harmful to give anything more away?

The Anaheim situation is only the beginning. Here is another interesting cat from the bag, and this one is tagged, "Boulder, Colorado." The Boulder story can be read in the "Request for Cable TV Proposal" issued by the City on June 13, 1972, and in the ensuing reaction in the cable industry trade press. Installments of this reaction appear in **CATV** magazine, the industry's trade weekly, for July 24 and August 21, 1972, and in the August 1972 issue of **TV Communications,** a monthly magazine put out by the same firm that publishes **CATV.** Let me review the situation briefly for you. The city of Boulder alleges the following bill of particulars:

- that with the exception of Colorado Springs, all franchises that have so far been granted in Colorado were given out by municipal governments before they knew and understood the potential of cable;
- that the city of Boulder granted such a franchise in 1965;

- that the City now realizes that it did not adequately protect the interests of its citizens in the cable franchise that it granted in 1965.

The question is, What to do now? Reviewing the 1965 franchise, Robert Sample, the City's Administrative Assistant, noted that it contains a clause stating that the franchise is nonexclusive. In other words, nothing theoretically prevents the City from granting a second, third, or fourth franchise to cover the same geographical territory as the first franchise. In practice this is rarely, or never done, since cable is intrinsically a monopoly service. Sample, however, recognized this clause as his bargaining tool. With the Mayor's approval, he drafted a new Request for Proposals (RFP) for a cable system for Boulder. The franchise would cover the same geographical boundaries as the existing franchise, with the understanding that the existing franchisee could enter the competition on the same footing as all other bidders.

In the RFP Boulder specified that it wanted a dual-cable system with at least 30 channel capacity. With regard to services the RFP said that, although some have good revenue potential and can be properly exploited for profit, "some ought to be free to all citizens." In the latter category are three types of service that involve "direct community benefits . . . (1) basic equipment for living in a modern democracy, (2) aids to public health and safety, and (3) means to cheaper municipal services."

The city further stated that it would like to receive proposals that provide for financing of the public access channel through a two percent levy on the system's gross revenues, through a direct annual payment of $20,000, or by some "more innovative" mechanism that the applicant might be able to suggest. Other things desired by the City as set forth in the RFP were:

- placing of a cable outlet in every dwelling unit, making Boulder in fact a "wired city;"
- electronic subdivision of the system to make it possible to broadcast to subcommunities within the city;
- if possible, importation of a Spanish-language channel for Boulder's Spanish-speaking population;
- if possible, reserved channels for the Public Library, the University of of Colorado, local hospitals and health facilities, and local law enforcement agencies;

- at least three closed circuit channels for the Boulder Valley Public School system;
- importation of a number of radio signals, including Spanish language stations, and programming from the Canadian Broadcasting Company and the British Broadcasting Corporation.

If one can judge by the reaction of the trade journals, this shot fired by Boulder has horrified and galvanized the industry. The first reaction came in the form of an editorial in the July 24, 1972 issue of **CATV** magazine, written by Milt Bryan, the magazine's executive editor. The editorial, entitled "Such a Deal!", read in part:

> How would you like to wake up one morning and find out that the franchise in your town was being put up for grabs—that you might have to tear down your cable, and kiss your whole investment in time, money and manpower goodbye? Fortunately, it's the kind of nightmare most cablemen don't often have to worry about.
>
> But in the case of Community Telecommunications and the company's Boulder, Colorado franchise, the nightmare has come true. Newly elected Boulder politicians have decided that they want to trade their scrawny little standard CATV system for a Belchfire 8 Cable Communications model. And, now the city has scattered its requests for new cable TV proposals all over the land.

The editorial sets forth some of the provisions of the RFP, and notes that "just in case the above weren't enough to cause multiple coronaries," the RFP also specifies that the City Manager shall have the authority to "devise, promulgate, and administer all rules, regulations and procedures" arising under the contract.

The theme was picked up in the August 1972 issue of **TV Communications**, with some interesting additions. In an editorial entitled, "Blue Sky: Come to Haunt Us," the publication says, in effect, that if cities insist on placing these kind of provisions on RFP's and ordinances, then cable companies will simply lie in order to get the franchises. Listing some of the provisions of the Boulder RFP, the editorial says:

> Nevertheless, because of its confidence in cable's blue sky, the city has felt free to urge cablemen to make their proposals in terms of the above criteria. **And they will make**

> **proposals which include the above—whether they think they can fulfill the terms or not.** (Emphasis supplied)
>
> Why? Because the name of the game in cable today is franchising. You only have to count the number of franchising men in the office of every large multiple system operator to realize this. There are enough franchise seekers in cable today to make a small army.
>
> The usual MSO philosophy: "There are only so many franchises out there, and we'd better get them while the getting is good . . . promise 'em anything you have to, but get that franchise."

The writer of the editorial adds, "I am not down on MSO's, nor am I in disagreement with their growth philosophies."

Mr. Robert Sample, Administrative Assistant for the city of Boulder, who was the author of the RFP, wrote a letter in response to **CATV** magazine's July 24 editorial, and his letter was published, along with the magazine's reply, in their August 21 issue:

> It seems to me that the tone and attitude displayed in Mr. Bryan's article bode ill for the future of relations between the cable TV industry and local governments. The articles's use of such phrases as "Nightmare Come True," "The Damage is Done," and "utterly ridiculous proposal" belong more to the earlier days of yellow journalism than to a time when a reasonable airing of difference is needed. If this belligerent attitude is shared generally throughout the cable industry, then I foresee years of fighting, bitterness, and delays ahead.

From there, Sample proceeded to what he perhaps sees as the heart of the issue. "From Mr. Bryan's article it appears that the cable industry, having won the fight for importation of distant signals, now wants to fight against local government efforts to increase the number of services provided by the industry." He emphasized that the City's RFP was not an inflexible document, but a basis for negotiation. "In a satisfactory negotiation process both sides usually start fairly far apart in their original positions. The City consequently included in its RFP every possible service currently being discussed in the literature. It is expected that firms will include only the most feasible of these ideas in their original proposals. During the negotiations both the City and the firms will be expected to make concessions to the other side."

Coming Issues

In his reply to Sample's letter, Bryan stood his ground. Big city cable television, he contended, is a risk laden business from the point of view of the entrepreneur:

> And with all these major uncertainties, you and a few other cities asking for cable bids, have the audacity to ask the industry to promise you the moon on a platter. And that's what burns me . . . the FCC did not tell cablemen that they had to send you your pants back from the cleaners on the cable . . . In short, the FCC's Third Report and Order does not give you a mandate for robbery. . . you are disgustingly naive.

Bryan then sounded the same theme that has been sounded in **TV Communications.** The cable operator "just needs that franchise too badly. Once he gets it, and gets his cable in the air (or under the ground as you desire) he knows you'll bend to reason."

As you go through your sessions and deliberations during the next few days, I am sure that you will want to keep these things in mind. The controversy that has boiled to the surface in Boulder can only get more serious. How much should a commercial cable operator in the metropolitan area be expected to provide in the way of non-lucrative civic services? What approach should the city take with regard to the things that it thinks it should have, and how should it go about getting these things? One might also reflect on how cities should deal with an industry, many of whose members according to its own trade publications, will lie to win franchise competitions, with no serious intention of delivering the services that they promise to give.

[illegible] are other questions and issues. Here is a clipping from an Akron, [illegible]paper, dated March 15, 1971. The headline reads, "City Gets Few [illegible]; CATV Rates Rise." The text reads in part:

> Charging that they don't have enough information to object, Akron councilmen are allowing a boost in cable television rates from $4.75 to $5.95 a month. The council's public utility committee reported today that it could find no reason to prevent the rate increase by Akron Cablevision that will affect Akron's 9,000 subscribers. Mayor Ballard charged no case could be made against a rate increase because Cablevision refused to make its current financial position a matter of public record.

What we have here is a situation in which the cable operator can come in and ask for an increase, prohibit any access to his books, and leave it up to the city to discover, if it can, whether the request is justified.

The explanation that the company gave for its refusal to permit access to its books, was that such an action would be in violation of Securities and Exchange Commission rules. As a matter of curiosity, I called SEC to find out if giving authorized city officials sufficient access to its books, to make it possible for the city to determine if a rate increase is justified, would represent a violation of any SEC rule by a cable company. The answer was a straight no.

Here in the newspaper article Mayor Ballard states his plight. Akron, he says, does not have "the necessary strings or controls to exercise any effective and informed regulation of this kind. In short, we lack the means to adequately protect the public interest. We don't know anything about this except what they see fit to tell us." To this, one can only add that cable franchises to the number of three thousand and more have been granted throughout the United States, few of which afford the public and the city government any more real control over various matters of vital importance and concern than the city of Akron had when the rate issue arose there.

Now, here's another interesting item, this one from **Strauss Editors' Report**. The issue in this case is the propriety of ownership of cable television systems by other types of communications media—in this instance, a newspaper. The item reads as follows:

> **Promises, Promises—often essential to obtain a cable TV franchise**—can also be troublesome later. Consider the experience of the Tacoma (Wash.) News-Tribune. **In its attempt to get the local cable TV franchise, the paper reportedly agreed to hold down on criticism of incumbent officials as they went into last year's elections.** A political reporter with a reputation for attacking the local administration was shifted to writing obituaries and innocuous featurettes.
>
> After the election, the city split its grant of the cable franchise between the Tribune and another group. Two days later **the Tribune alleged** in a front-page expose that **the other grantee had improper business ties** with a city councilman. Next, the new deputy mayor charged the paper with trying to discredit the other group, and the council withdrew the Tribune's cable franchise . . .
>
> Finally, the deputy mayor asked the FCC and the Senate Commerce Committee Chairman Magnuson (D-Wash.) **to probe the Tribune's "news disseminating monopoly."** The paper—though it no longer has a CATV franchise—does own Tacoma's KTNT AM-FM-TV.

Coming Issues

This item indicates what can happen when the ownership of various types of media falls into fewer and fewer hands. The same people can manipulate not only what you see and hear on one medium, but on several media that together represent the lion's share of available local mass communications.

The Federal Government's response to this problem has been halting an uncertain, and there are strong hints that such moves as **have** been made will be abridged or repealed. The Federal Communications Commission has issued a rule prohibiting TV stations located in a given community from owning a cable system that serves the same geographical area, and it has under advisement a proposed rule that would similarly ban cross-ownership of a newspaper and a cable system in the same market. But industry opposition to these cross ownership bans is powerful, and the voice of the industry seems to have been heard in the White House. The Office of Telecommunications Policy, which is an agency of the Executive Office of the President, has given clear indication that it opposes any restrictions on cross-ownership of cable systems by either broadcasters or newspapers. It seems unlikely that the Office would take a stance on this matter that did not represent the view of the White House, and it seems equally unlikely that any restrictions on cross-ownership, present or proposed, will withstand the kind of political heat that can emanate from **that** quarter. What persuasion won't achieve, Administration-sponsored legislation—introduced into a Congress whose members are heavily beholden to newspapers and broadcasters for their exposure to the electorate—will.

Now, here is another item containing more bad news for people in whom the hope springs eternal that the function of government is to protect their interests. It comes from the September 1972 issue of **Cable Information,** a newsletter for churchmen, educators, and community leaders, published by the Broadcasting and Film Commission of the National Council of Churches of Christ. This item discusses the newly established Massachusetts Community Antenna Television Commission, which was created by state legislative enactment earlier this year with a broad mandate to search out the facts relating to cable and to promulgate appropriate rules and regulations. However, there are interests intent on reducing the Commission's effectiveness by subjecting it to economic starvation. "The governor's 1973 budget request of $102,000 for the CATV Commission," this item says, "was cut to $20,000 by the House Ways and Means Committee. Appointment of the Commission, already five months overdue, is now still further delayed. According to the (Boston) **Globe,** it is already 'too late to have influenced the state's greatest burst of franchise-seeking activity.' "

Coming Issues

If we move back again to the federal level, we find a jungle of regulatory issues—too many to cover unless one were to write a book. One that is of particular interest to this audience is the provision of FCC's new cable rules, enacted in March of this year, that relates to free channels. The FCC rules state that cable systems franchised in the nation's top 100 markets after the enactment of the rules must provide one free channel for educational use, one free channel for governmental use, and one free channel for public access.

Now, the question immediately arises, What if a city conducts a successful negotiation with a prospective franchisee that calls for more than one free channel for educational, governmental use, and/or public access? Increasingly it appears, that unless the city can convince the FCC that it has a need for these channels the **Commission** regards as valid, the Commission will not grant a Certificate of Compliance to permit such a franchise to go into effect.

What we have, then, is a situation in which the Commission, faced with the uncertain profitability of cable in major markets, has decided to grant economic protection to the cable operator, regardless of whether the cable operator himself thinks he can make a go of things without such protection, and regardless of what the city thinks it may need for valid social uses. Interesting questions are involved. First, do you feel that educational institutions, libraries, municipal agencies, and other social service users are entitled to free channels, or do you think that they, like anyone else, should pay modest rental fees for channel space just as, for example, they pay for telephone and electric light service? Is it fair to ask the cable operator for these things or not? Second, if you decide that it **is** fair, and if the cable operator is willing to go along, is it a reasonable function of the Federal Communications Commission to usurp the judgment of both parties in the interest of a type of economic protection whose need has never really been tested or demonstrated in the marketplace? As educators and librarians these are issues on which it will be hard for you to avoid having an opinion as cable comes to your towns and cities.

Well, so much for the bag of dead cats. There are a lot more in the bag there, but we'll let them be. I rather guess that I have produced enough of them to give you an idea of the complexity of the issues involved, and of how much can be lost if people do not know and do not care.

But the scene is far from being really bleak. We can at least say that these days the cities are waking up, and so are schools, libraries, social service agencies, and community groups. Some cable operators are also truly interested in the great potential of the new communications medium that they are bringing into being. And some legislators and regulators are interested in what this nation needs and wants.

The most hopeful thing of all is conferences like this that bring together people who want to understand what the issues are, and what is at stake. When the issues arise in the coming months, a group of informed and concerned people in a community can quite literally make the difference. It is an open, fluid situation, on which energetic people can make an impact. Don't think that your voice is lost. It can be heard. And it can matter a lot.

Panel:

Identifying User Needs

Chairman:	**Brigitte L. Kenney, Graduate School of Library Science, Drexel University, Philadelphia, Pa.**
Panelists:	**Mattie Humphrey, Human Services Cooperative of Germantown, Philadelphia, Pa.**
	Brent Shaeffer, Community Video Workshop, Reading, Pa.
	Edward Warner, Regional Planning Council, Baltimore, Md.
	Robert Wilson, Economic Opportunity Council, Reading, Pa.

Kenney: This panel will address itself to the problem of identifying user needs. You may wonder why we chose this topic for the first panel. We think it must be considered first because in order to utilize cable, libraries will be dealing with an entirely new clientele, whom we have not reached before. We don't know who these people are and none of our present knowledge about users will be sufficient to extrapolate to this new clientele. When librarians talk about users, they often mean the people who come into the library, the ones who constitute that famous 12-15 percent of the adult population which innumerable surveys have shown to be basically white, middle-class, well-educated and suburban. Survey results have not changed very much in the past twenty-five years, between Berelson's **The Library's Public** and Martin's **Library Response to Urban Change.** We pretty well know this clientele, who they are, why they come, and what they do after they enter the library.

Our "users", in the context of this conference, are different. They are the ones whose television sets are connected to cable systems. They encompass all social strata, all economic classes, all races and all ages. They are the ones who have not needed us before; now we are trying to reach them in an entirely new way, via cable. This requires planning on our part, and for this planning we must know more about these potential users than we do now. Perhaps we should call them non-users, first of all, because that is what most of them are.

What do we know about these people? If we are talking about the urban poor, we know that their preferred medium for obtaining information is the radio; next is the local newspaper, followed by television, metropolitan dailies, and informal communication, in that order. Libraries do not rank at all. When these people want to resolve problem they may have with conflicting information, they turn to their television sets (Greenberg and Dervan, **Use of Mass Media by the Urban Poor).** Other studies have shown the same pattern.

There are other bits of information we can obtain. Census data show, among other things, that more color television sets are owned in the ghetto than in suburbia, that there are more television sets than telephones and bathtubs, per family, We know about average incomes, types of housing, and so forth.

We do not know very much about the information **needs** of these people, however. And we do not know how most of these **needs** are presently met. Perhaps it is useful to define **information needs.** The dictionary defines need as: "the lack of something requisite, desirable, useful. It implies urgency and **may suggest distress**." (Emphasis supplied.) The impication appears to be that this is a "felt need" as opposed to an "unfelt need." We cannot deal with the latter very well; thus we should concentrate on the former. A "felt need" is something somebody **knows** he needs.

Next, we should define information. This we must do in the broadest of terms. The dictionary is helpful here also: "The communication or reception of knowledge." Thus we may say that an "information need" is anything someone wants to know and makes an effort to obtain.

This is far broader than wanting a piece of library material; it includes answers to questions as well as solutions to problems. It requires a different approach from that which we have taken in libraries, where we often point out sources of information, rather than answering questions. It requires an activity on our part much more complex and sophisticated, with much more involvement in the user's affairs than we normally offer in reference service.

Let me try to outline what we need to know in order to meet the kinds of information needs described. We need to learn more than we know now about the community in which our potential users live. We need detailed data, something like the Census data mentioned before. More importantly, we need to translate this data into impressions about what the people are really like. Data can only furnish a small part of this knowledge; the rest has to come from going out and talking **with**, not **to**, people, becoming part of the community and the groups within it. This is not easy to do, considering our backgrounds, and the barriers which are there, of which we are aware, and about which we can do little. It means gaining the trust of people, and learning from them what their concerns are. It also means trying to see the world through their eyes, rather than ours. That is perhaps the most difficult task; it is hard to try to feel what it is like to be in another person's skin. But it is necessary, because it can mean that we learn respect, and improve our understanding, both of ourselves and of our potential user group.

If we gain these three things—respect for persons very different from us, their trust, and understanding we will at the same time achieve something else—communication. And this is, of course, the crucial ingredient in our effort to understand the community.

If we learn to talk openly, freely, and with understanding to one another, we can then begin to find out what goes on in the community underneath the surface which it presents to the outside. We can find the informal networks through which information flows in the community, and we can plug into this most important source of information. We can learn about the impact, or lack thereof, of the various agencies which are busy providing information to our community, such as social service agencies, drop-in centers and the like. We can learn if and how they help with the solution to such daily problems as: "How do I go about getting bail for my brother who was arrested?" or, "What can I do about my landlord who will not give me back my rent security when I move?" These kinds of questions are vital ones to our potential user group, and certainly not of the kind usually answered in libraries. Other people and agencies do answer them. Who are they? How many people do they reach? We need to find them, find out what they are doing, and how, and to whom they are talking. This means going out; we cannot sit in our libraries and get this sort of information.

Once we have this data, we need to use it for community analysis of information needs, along with the more formal information available to us. We can construct a fairly accurate profile of our community—what its needs for information are, how they are presently being met, and by whom. Based on this analysis we can then begin to plan our activities, which should complement rather than duplicate, and which can be vastly enhanced by cable. One of the more startling findings of some recent studies shows that despite a plethora of groups and agencies active in a given community, the people for whom specific information is intended are often not reached, even though all presently available communications media are used to advertise services. I see libraries as collectors and disseminators **of information about information**—via cable. That is what we do best—collect, index, and disseminate. Thus our role can be that of community information switching center, bringing vital community information to the attention of people who need it, arranged in such a way that it is meaningful to them, and then cablecast into their homes, via a medium they know and trust.

Wilson: The point of this medium is its accessibility. In Reading I worked with an anti-poverty organization where the problems of low income families, such as housing, transportation, and consumer needs, could be identified immediately by using this medium. Low-income people are not what Alvin Toffler would call "future-oriented." They are concerned with the immediate questions and I see this medium as one means to challenge this problem.

Kenney: You feel that using video equipment in the streets with the people is a valid means of gathering information, or am I putting words in your mouth?

Wilson: One of our projects in Reading was the taping of a local NAACP beauty contest. There was a sense of unification for the people as well as increased interest in the project and the medium itself.

Warner: The Baltimore Regional Planning Council and the School of Library Service at the University of Maryland are jointly doing a study, whose main concern is to determine information needs in an urbanized community, and to find out what means are used to obtain information, as well as the type of responses received from the sources consulted.

Our primary method was to try to go into an urban community and talk with a representative sampling of the community. It was not necessary that they be users of any type of information service. We utilized the Urbanized Area concept employed by the Census Bureau. This included the entire city of Baltimore, part of Baltimore County, part of Howard County, and part of Anne Arundel County. These are densely populated areas but there is a representative cross section of individuals in terms of socio-economic levels. Typical of many large American cities, Baltimore is about evenly divided between black and white, although Baltimore County, to the north, is only 3 percent black.

We needed to investigate three basic points: 1) the information needs of the people; 2) what means they used in obtaining information; 3) the type of responses received from the consulted sources. A great amount of data was gathered on our first and second questions but work is still needed on the third problem.

Our goal was 1000 respondents within the urbanized area; we completed 950 questionnaires. Our emphasis was on **why** questions; this led to problems with coding since the 29 page questionnaire tended to be rather "open-ended." A collapsible coding system, roughly paralleling the Dewey scheme, was developed, although it was not entirely satisfactory.

To develop the questionnaire—a vitally important part of the project—many established community groups were consulted and a number of ad-hoc groups were formed to act as an input as to the type of question and how it should be asked. Eight pilot interviews were conducted by our interviewers whom we selected from professional community organizers, social workers, etc. These interviews were followed by debriefing sessions which gave us additional input for the development of the questionnaire. The final version took nine months of work. The information received from respondents during the interview process will be compared later with the information received from the group and panel meetings.

The interviews, approximately 45 minutes to an hour in length, presented another problem—that of fear. Those contacted for an interview feared that it might be a set-up for a later burglary. Those doing the interviewing ran the risk of being shot by homeowners who feared a break in. We've had very interesting encounters, but thankfully, no deaths.

Another problem encountered was whether the perception of the problem or given set of facts differed between the interviewer and the respondent. A comparison will be made between the perceptions found in the respondents and the perceptions of those who are supposed to fill information needs. This category would include librarians, community organizers, field workers, etc. Another basic question also arises. Do libraries have a role at all? Most of the information problems we are dealing with are tied to problems of service or of need. They run the gamut from the very serious to the very trivial. In the inner city, we find the information problem centers about trash removal, abandoned cars, to mention a few examples and the need for information is: "Whom do I call?" We are also finding that higher education appears to be training "system negotiaters" and that these are the people who seem to be the information surveyors in many communities.

As was already mentioned, most of these information needs seem tied to survival struggle. Many people can state their problems but feel hopeless as to any solution. I think it is most important that we try to get people to think that there is a way to solve problems, but you cannot do that unless you have some kind of solution available.

The influence of television viewing must also be considered. The Greenberg and Dervan study indicated that, in the areas studied, there was an average of two working TV sets per family regardless of race. Our findings indicate that, in some of the inner city areas, this average can go as high as four sets. So, I think we have some data to show that cable appears to be a feasible approach to information dissemination in various urban areas.

Kenney: We have a number of problems which merit further discussion. Ed Warner has raised the serious problem of two very different conceptions of the same problem between the information seeker and the information provider. I am also concerned, after listening to the panelists, about the fact that many people have given up on their problems. Perhaps information won't help. Perhaps there are no ready solutions to problems. These issues are vital if we are going to address ourselves to the information process in the cities.

Humphrey: I feel that I have to translate problems into terms of needs. When I say, "This is what I need," I then have to seek a resource, and that is where the difficulty comes in. We have not been permitted ideals, a frame of reference, an ideology, or a vision. In our society second and third generation immigrants are creating for others the same oppressive life style which their own forebears once fled. A basic problem in our communities is, Where are the people who want to transcend the necessity for oppression? Where are the people who feel that the human race is capable of constructing another level of living?

I feel that in the urban communities we are ahead of other communities in that we are feeling things that they do not yet understand. The concerns the librarians have expressed about information resources are concerns that we laugh at. We wonder that people still have illusions, that they believe that the corporate or institutional mode can really take care of people's lives. It should be the supplemental, rather than the substantial, way of dealing with our lives. We need to be people first and corporations second. Most of the people here are present on a corporate assignment, or because of their corporate role. It's their "job thing," or "profession thing." I hope some of us are here out of our "people thing."

Bill Williams, Wyoming: I'm wondering about the role of television in a community which has a large ethnic minority. From an Anglo-Saxon viewpoint some might say that television should play a life adjustment role in inculcating people with the values of society. Might we not be doing them a disservice in trying, through the medium of television, to make them adjust to a white middle class life style if they are already well adjusted to their own environment? Do we have a basis in our experience to provide valid information or programs over cable television that could be of real value to people living in a different environment? Should we even make the effort, regardless of interviews and questionnaires, or should we let them determine what should be produced?

Kenney: I detect an assumption here that we are guilty of presenting a point of view in our programming. What is public access? Public access supplies a channel to be used by community groups in the way in which they wish to use it. We are not given a license to impose our views, but rather to make sure that everyone gets a hearing. Perhaps someone could indicate ways in which they encourage groups to present their own viewpoints and some of the problems they may have encountered. Have you had censorship problems? What about community groups which have a very different viewpoint from that which is accepted?

Shaeffer: Cable is a psychological medium. When you get feedback from the mistakes you have made, you gradually learn how to use that medium in a different way. Censorship comes with editing. I encourage people not to edit. If they want to edit, I show them how and nothing more. The only role I try to play is that of an educator in the technology. If they want, I try to educate them to the philosophy of the medium. Traditionally, when someone had information, a professional media person came to the community and imposed himself on their problem, usually through dialogue. He said something; they said something. I just usually let people go on with what they're doing.

Kenney: How do people respond to this type of opportunity? Do they take advantage of it? Is the product something that other people will watch? If it is shown over cable, how many people are watching? Does it change their lives?

Wilson: There is much interest. One of our projects was a film tribute to one of the local physicians in our community. The community had been aware we were working with half-inch video equipment and many civic organizations came forward to help us. Dr. James F. Goodrim is one of the leading residents so there was a great amount of interest in its production.

Kenney: How do you gauge feedback—phone calls, asking people? How do you measure your impact?

Wilson: Mainly from word-of-mouth, person-to-person contact.

Joe Falgione, Pennsylvania: I do not agree that the number of TV sets in a household necessarily means that people are going to watch informational type cable television. Many of these sets are for escapism because people can't solve the problems they do have. Informational type programs may even serve to make their frustrations greater.

I have agreed with some comments here today; I have violently disagreed with others. It is not information we need, but solution of problems. Local and national governments have the necessary information to act on problems but they do not act. Why use all our energies to provide information when we might do better in trying to provide pressures to change priorities so that there will be action.

Telling people why the housing problem isn't solved will not help them. Only by solving that problem will we change their lives. Information and entertainment are not really going to solve the basic problems of people.

Kenney: We really have been talking about two different things here. One is providing community programming, the other is dissemination of factual information.

Charles Crosby, Rhode Island: I think we have a dichotomy here. We have the over-educated psychiatrist-social worker in Ed Warner's program, asking someone to tell his life story in 45 minutes on a 29-page questionnaire. Or we have what is being done on the streets with videotape, catching the nuances of people in their own environment.

Humphrey: What has just been said indicates that definitions placed on "objective reality" are as multiple as people. What is missing is the opportunity for certain people to define the so-called objective world about them. Certain people say the urban community is chaotic and crisis-ridden; some of us say it is because we have all the by-products, the waste products of technology. We see the other side of the picture. We have information you do not have. Do you know the effect of the transportation code on our children's lives—you who have playgrounds, garages, large wide streets? We have parking on both sides of the street and two-way traffic and no place to play. We take this information to the highway people and tell them cars should be outlawed from the inner city and there is a big discussion because they don't know what it means. Daily happenings of real consequence to the urban community are unreal to the people who do not live there. The sleepwalkers in surburbia are facing this at an intellectual level. Libraries will either wake up to this kind of reality and help us take the next step or they will continue to become obsolete. Libraries don't seem to be functioning today. It cannot remain that way. They will either function or they will not be.

Kenney: The question is, Where does the library fit in here? What is its role? We do know that libraries will be information providers. They are not reaching as many people as they wish, but for many people, the library can be a catalyst, helping them to know each other and their responsibilities.

The library can provide simple directory service via cable. The names of agencies and the services they can provide could be listed on a continuous basis in the manner that some programs give stock market reports.

A third function would be to provide information to people already active in their community, advising them of services available to them to help them do a better job.

Mabel Fisher, Texas: I would like to address myself to a rather philosophical concept, especially when we talk about mythology and ideals. I believe we WASPs are all captives to what I consider a mythology foisted on us by advertising media and I would like to see the role of cable TV, especially in local communities, to be that of a demythologizing instrument. I hope that cable, if properly utilized by the public library, will rebuild understanding after this demythologizing has taken place.

I would also like to refer to the information and referral service of the public library. If this were provided over cable, and if there were sufficient interest aroused in our communities, we could force city officials, the bureaucracy in city hall, into face-to-face confrontations on cable television. This is a much more immediate way for people to see their local officials' behavior than reading about it.

Kenney: What you are saying, I think, is that it works both ways. People don't know the real problems; if we can show them their local officials on their TV sets, in a city council meeting, a Board of Education meeting, it should make them better informed about what the problems are, and they, in turn, can make more intelligent presentations than before, when we often had much passion but little information.

Crosby: In regard to determining information needs, we are in a real trap. We are trying to collect empirical data to generalize to a large group, for whom we must develop programs. It is not possible, under present political and economic conditions, to have personalized data; too, they cannot be limited by geographic boundaries that are too small. Shaeffer's perception of what goes on in the street is based on not interfering with things as they are happening; he is very careful about that. And yet he cannot generalize this information to a larger group. It is an age-old problem; yet, approaches must be tried in order to formulate responsive programs.

Panel:

Organizing the Community

Chairman:	**Dr. Harold Wigren, National Education Association, Washington, D.C.**
Panelists:	**Mattie Humphrey, Human Services Cooperative of Germantown, Philadelphia, Pa.**
	Brent Shaeffer, Community Video Workshop, Reading, Pa.
	Arnold Sparr, CATV Committee, Long Island Educational Communications Council, Hicksville, L.I., N.Y.

Wigren: This session is called "Organizing the Community." Before we begin I want to say something relating to the program we have just had on "User Needs." It is about an experience I had in Alaska two years ago. As many of you know, I have been working with Alaskan native villages and the teachers in Alaska on a number of projects, particularly on a satellite study. We were doing an educational needs survey. Two of us were going from one village to another to do a needs assessment. We got to a little village called Tildens, which is on the Bering Sea, and we decided we would leave portapak equipment in the village for two weeks. We taught them how to use it and then we went somewhere else. We were not sure whether anything would happen, but when we came back at the end of the two-week period, they handed us a videotape. We asked what it was and they said, "Well, we've written a visual letter to the governor. We want him to know what some of our problems are." We could hardly wait to see it. When we looked at it, we found that they had kept the camera far too long on some subjects and when we asked them why, they said that they felt that these were important and so, much time was spent on them. There were two things they emphasized that just floored us. One of them was their need for fresh water supply, which they didn't really have, and we did not know that it was such a great problem. The second thing that was even more surprising was their need for refrigeration. We couldn't imagine Eskimos needing ice boxes. But they do. They told us that one of their greatest problems is that they get all this reindeer and caribou meat. Along comes July and August and things begin to warm up to about 50° and they lose all their meat, because it spoils. If we had been making a needs study of Alaska we would never have put refrigeration as one of the primary needs. Yet here were people using this medium to tell their own story, to let the rest of the world know what their real needs are.

This is the greatest possible thing you can do in terms of cable television, because CATV will open up a whole new dimension of localism, since cable is **local** television. It is a whole new kind of television. Let us stop calling it cable television and call it cable communications instead, because that is what it really is. It is the second coming of television, and we hope that the second coming of television will be better than its first coming. If all that cable is going to do is to bring us clearer, ghost-free signals and more entertainment programs from far away places, I could personally care less. This is not what is says to me. It is not what is says to you, either. It is not what it says to teachers in this country and to many community groups, particularly minority groups. I don't want more of the same. What we want is a new kind of communications via cable that we have never been able to see before.

So I submit to you that cable television really is cable communications, because it not only makes possible, in addition to good signals and distant channels, local origination **par excellence**, but it also makes possible a new kind of broadband communications to all communities that we have not had before. Of course you are turned on by the broadband communications aspect because of the on-demand retrieval and computer interconnections and all the many other things it is going to make possible eventually. And, last but not least, the great interaction possibilities. It is two-way. You **can** talk back to your television set for the first time.

Now having said that, let me caution you that this is not going to happen overnight. It is not going to happen at all unless all of us roll up our sleeves and get involved in this whole thing. I am desperately afraid that, unless the public is involved, our communities are going to be shortchanged. Cable operators, because it is a rich investment opportunity, have a tendency not to go into these other areas, and to them the shining gold is in distant signals and in the clear, ghost-free pictures. Therefore, much that cable will offer is going to be up to you and me. We have to keep reminding not only the cable operators but also our city fathers of the fact that cable is a new kind of animal. What we are really talking about here is cable information systems. I think this is an important concept. No matter what the technology, whether it's cable or satellite, it is really important to get the public involved. There has to be citizen action. People have to tell you, or you have to identify the needs, so that you will know how to use this medium to maximum effectiveness.

I think that we have a job to do. The basic question is how can the community, how can citizen groups, or citizens themselves as individuals, get a handle on cable. It is a very important business, because there is no such thing as someone else making the decision for you. There are so many alternatives your community must know about, and your job as librarians is to be a catalyst in the community, and get the information out, to organize town meetings, to get roundtables going.

Let me say something about PubliCable, which you have heard about on the national scene. It is a group of individuals and organizations that formed to help protect the public interest in cable communications. We have been referred to by the trade press as the "United Nations of Cable" and I think to a degree we are. We have many different groups but we also have many individuals. We have 70 groups and 115 other individuals who represent no one but themselves. We invite anyone who wishes to, to become a member of PubliCable. It costs $100 for group membership, and $15 to become an individual member. In PubliCable we have such groups as the League of Cities, the Council of Mayors, the Cable Television Information Center, the National Grange, the National Urban League, the Consumer's Federation, and the American Library Association. It is primarily a forum and we attempt to make it a good dialogue on one or two issues at each monthly meeting. We are now about one year and two months old. How long we will be together, I do not know. I know that most of our concerns have been in the areas of franchising and state/federal regulation of cable.

I think there is a role for community groups to get together, not only to inform one another, but also to find out where the action is, and to organize so that all of our affiliates on the local level can get together when there is to be a hearing, so they can make their points of view known.

There is another group that I have not mentioned so far and it needs to be mentioned. A very important group on the national scene is called the Cable Television Information Center. This group is a powerhouse of information. It works primarily with local and state officials, but it does help community groups also. The address is 2100 M Street, Washington, D.C., and I certainly hope you will be in touch with them.

Sparr: I can't separate the defining of user needs and the organizing of the community. I think that there is a definite tie-in; organizing the community does not mean that everybody is going to get together and have a meeting. This happens, and this is necessary eventually. But organizing the community means making the community aware of what cable can and will do or should do. The library is in an extremely good position to organize the community. Libraries have staff, and many libraries (at least in my area) have meeting rooms they can make available for planning sessions. Having facilities is a big asset in getting information out.

Next, we have to look at whom we are going to organize. We once tried to organize a group in a hurry. I got a call on a Friday that there was to be a franchise hearing the following Tuesday, and "if you don't make that franchise hearing, you're in trouble." So I called various organizations, asking them to a meeting. I couldn't get anybody to organize that fast. This is not the way it should be done. You should have a lot more planning before a franchise ever comes up, but you don't always get to do that.

Not only people who are members of professional associations should be involved. Get into the local community. Get the service organizations, organize the senior citizens. There is a tremendous wealth out there and the senior citizens groups not only have the information, they also have the time and they are looking for something to do. They will work hard for you.

You have media specialists and if you can get this kind of person involved in the cable question you will have resource persons who can help the people in the community find out exactly what equipment is available and how it can be used.

Just remember how cable television started: it started not as cable television, but as CATV, Community Antenna Television, and the community was the emphasis. And the community is the emphasis that has to be reborn. There is a tendency today in the cable industry to forget the community, just to worry about the implication of the segments. We've got to organize the community. Someone has to do it and I think libraries have got the potential and the wherewithal to do it.

Shaeffer: My own approach has been not to organize the community but, through a kind of non-organization, to set up a storefront center in the community. My reason for this is that the local cable company has established a local video workshop. The cable company is held in respect by the elected officials, so any kind of criticism I would try to make about improvement of services would put me in a worse light than I already am. Therefore, my approach has been to try and develop a non-profit corporation in a storefront facility. In that storefront facility I will distribute any information that I can on what a cable operation can do.

Humphrey: The reason I reject the notion of organization in my particular community is two-fold. First of all, my community is already over-organized. Ten years ago the "Great Society" did a tremendous job of creating structures and networks in our community which have been used primarily as political instruments for a one-way information process. I don't want to see any more of that. That kind of organizing has come along every two of three years in our community. It has gone on at the municipal level, at the state level, and at the federal level.

The reason I am against these organizing efforts is not that I believe people should not be organized, but because I feel that when alien or external systems have to organize you then you are, in fact, disoriented.

The other part of my reason is that my community is under-informed, and I think to behave rationally one must have information, otherwise one behaves emotionally. I don't want to sound philosophical, but it's when I've come to in trying to make sense out of what is going on in my community. I feel that we need a great deal of information, and that we need to suspend some of the organizations which function in our community. Some of them are residuals that go back even further than the Great Society era. We have labor organizations in our community which are attempting to influence certain kinds of approaches to consumerism, and a lot of it is dedicated to keeping certain jobs and industries going. We also have in our community problems between the different levels of government. Now you may not think that this is a concern in the information process, but if we could sort out and make coherent the roles of the various levels of government which have some mandate in relation to the people, I think it would help. For instance, in my city cable is not a household word. The average person in this town has never heard of cable, and that seems remarkable because there are suburban and rural areas where people see cable as an everyday reality.

We need some information about what is happening in society. For example, social workers came into being as part of the great move to Americanize the immigrants—there was a need for people with a different language, a different culture, a different international orientation to be harmonized into American culture, American life, the American political system. Social workers began to make that happen. The people who are now being influenced by social workers are not people in serious need of being Americanized. Yet social workers are still going about that same process. It is in the cities that most social work is done, yet we who live in the cities do not have the same need to learn. We know the American language, we know the American culture, we know the rhetoric, we know all about America. We know more than the social workers do, because we have seen it from the inside and the outside.

I think librarians have been rather sterile; they've been out of it as far as organizing the community. I think, instead of organizing the community, the function that they should have is informing the community. I think the library is in a position to do that but this has social consequences; it takes courage; it also takes some idealism, which I'm not sure is legal anymore. We have to presume that idealism is possible, that it is possible to create a new frame of reference and then work toward it as a goal. Too often our communities are approached in terms of how **you** see **your** problems and not how **we** envision the world, how we see the future, what we think that we as human beings are capable of. This is something we would like to tell people. Social workers don't want to hear it and maybe librarians don't either. I am assuming there are people who do want to hear this, who do want to communicate, who do want to be part of a two-way information process.

Another problem is that in communities we have developed such sophisticated ways of polarization that we can stereotype everybody in five different dimensions. For instance I could be stereotyped because I am black, because I am female, because I am urban, because

I am non-Christian, because I am non-Jewish. I think we have done so much of this in our society that what we need now is the fusion process. This does not mean that individuals have to come together physically, because that is not what it is about, but come together so that we can develop the kind of frame of reference where we understand what reality is, where we do not go around having to eliminate half the world because it is not **standard**, where we do not go around indicating that females are less than human beings because they are not male, where young people are not regarded as a different species from other people.

In our community we need some kind of harmonizing force, some kind of fusion process, some kind of commonality of information. We need a generalist view. We don't want to see the general library done away with as the family doctor was done away with, if that makes sense. I don't think about libraries every day, but it seems to me that libraries are in danger of being specialized out, phased out.

Wigren: I think all of us do not agree on the approaches, but we are agreed on one thing and that is that our communities need to be informed, that information is the start, that our communities are under-informed. It is interesting to me that all the arguments that have been given for not organizing, which I think are very valid, are also the arguments that many of us have given for organizing. They are the very same arguments. Three things were mentioned that I know we have all struggled with: How do we get a commonality in the community? How do we create a fusion process? How do we get a harmonizing force? Let me say that before we even organized PubliCable, there were about 60 of us who met for about three months on the average of every two or three weeks informing one another, but there was still something lacking we felt. The thing that was lacking, in our judgment, was clout, and the only way we could get clout to help people in the field, was through our own membership. They, in turn, could go out and inform other people, because each of us has a network within his own organization. We are using these networks as a means of disseminating information. How do you get the information out unless you can unite in a common force at the local level to see that the communities are not shortchanged in this whole process?

Humphrey: Could you subscribe to a priority objective that aims at increasing the survival probabilities of people living in the cities? If you could subscribe to that priority, I could collaborate with you. How do we begin to do that? That would be the question, because the clout that you talk about is lined up against us, and you don't get clout to turn against itself, or at least you don't do that by yourself.

Wigren: One of the things for which we need clout is that in some localities there ought to be minority ownership of cable systems. Why did we start PubliCable originally? It didn't originate in my office. It happened because a group of black citizens came to see me and said, "Will you join with us to help to get the communities informed?" and we talked about ways that we could do this. We decided we would have some meetings, town forums on the subject. One of their concerns has been that black communities are not so much interested in access as they are in ownership. They want a piece of the action. They want to see some cable systems in this country operated by blacks. This is important because they feel it is the minority group's last opportunity to have any part, really, in the communications system. They have lost their opportunities in commercial broadcasting. Very few blacks or American Indians or Chicanos are involved in any of these groups. Certainly in my own field of public broadcasting, our record is very bad. Despite all of our talk, there is not a single black manager of the 212 public broadcasting stations. There is a total of perhaps 15 or 20 blacks who are in positions of responsibility in any of these public broadcast stations. So here, in cable, is the minority group's last opportunity. We thought that by organizing, we would be able to make some imprint on the community of the value of that issue.

Humphrey: The mythology about minority groups is one that troubles me because the country is made up of many minority groups and everybody is in a minority, depending on what he expects to get for being part of that minority. I can be a minority down to where I'm a minority of one. But the people in the black community who are quoted in terms of wanting a piece of the action are simply those people who are being looked for by those people who are already part of the action. That means that when you come to our community you will find whatever reflection you cast.

Wigren: Are you saying that these black leaders don't represent the real feelings of the community?

Humphrey: No, I'm saying that there are some very economically astute people who respond to the larger society by calling for a piece of the action. You don't develop an economy as a nation until you develop some very serious exchanges of values. That is, I have something that somebody else wants and therefore it takes on a value, and I've created a medium of exchange. We have to live with duality. We have to attempt to have some kind of cultural integrity, meaning exchanging things of value to each other, participating in common activities, common developments, common goals. But at the same time, we have to interact with the dollar-based American system.

Bill Williams, Wyoming: You have alluded several times in your conversation to the possibility that libraries are fighting for survival.

Humphrey: No, I said that urban communities are.

Williams: Well, libraries are fighting for survival also. Now, looking at it from a pragmatic point of view, where are the libraries going to turn, if they do turn, to try to get more support? I would maintain that they are going to try to go back to those who have traditionally supported them in the past.

Humphrey: All kinds of institutions that want to change their function in the community have been trying to get the black community to endorse them, and in fact, in our community they have been doing it very well. I think our community is a reflection of the larger society, but we constantly get used by that larger society in a polarizing way. I think libraries are beginning to relate to the fact that this diversity is all around them, at least in the urban communities, and begin to see we have got a commonality of concern. How do we translate this into a resource?

I can give you one example of what I mean by a cooperative. We, in our community, are trying to get video equipment so that we can go out on the street. In fact, Brent Shaeffer gave me this idea. He came down one Sunday and followed us around with his equipment. We have talked to several people and we would like to show the news in our community three times a day, at 12:00 noon, 6:00 p.m. and 11:00 p.m. We would like to show it on TV monitors in a big room and we have several possible places where we could do this. If we can get the equipment, we have the volunteers. We have talked with people in the public schools and we want each school class to have a public relations officer, and we would like all the schools to send us information every week on what's going on so we'll know what to shoot. We will pass out forms on the corner, where we will be shooting street scenes, telling people where and when to come and watch the local news. We are calling this "Operation Good News on the Homefront," and we are not going to try to get a balanced view of anything. We will look for the courageous, the beautiful, the inspiring, anything that is reaching upwards. So this is one proposal. We invite libraries, unions, anybody, to help liberate this equipment for us. We would be willing to let them do whatever they want in relation to sharing this information, because we think that given this equipment we can find the common resource. If the library got us this equipment, or the telephone company or the cable company, then of course, we would help them go downtown and sell it as a program to be funded. It would be in our interest to do that.

Panel:

Ordinances and Franchises

Chairman:	Dr. Harold Wigren, National Education Association, Washington, D.C.
Panelists:	Wallace Briscoe, National Cable Television Association, Washington, D.C.
	Brent Shaeffer, Community Video Workshop, Reading, Pa.
	Arnold Sparr, CATV Committee, Long Island Educational Communications Council, Hicksville, L.I., N.Y.
	Edward Warner, Regional Planning Council, Baltimore, Md.

Note:

A formal presentation with slides by Arnold Sparr constituted the first part of the program. Before the beginning of the program Dr. Wigren had asked the audience to submit written questions, and the remainder of the program was given to dealing with as many as could be answered in the assigned time period.

Ordinances and Franchises

Sparr: The library has been expanding in size and services to meet the needs and desires of its patrons, and it is imperative that librarians' knowledge of the potential of cable grow with the CATV industry. The services librarians can provide via CATV are limited only by available channel space, equipment, and imagination. Senior citizens, some of whom cannot even climb the steps of a bookmobile, can view book reviews and travelogues on their home TV sets. A scholar, working in one library, could scan resource material located in a central repository to insure the pertinence of its contents before requesting a copy for concentrated study. Telephoned reference questions can be answered by placing the appropriate material under the lens of a television camera, allowing the home patron to view the material, including charts and diagrams, thus freeing the librarian to help those working in the library. Before the potential uses can be set into operation, however, there must be complete and unencumbered access to the cable system.

One of the first and most crucial steps that should be taken before seeking access to the cable is to form a broadbased group to determine how the cable is to be utilized. The task force should have a membership representing librarians, audio-visual specialists, educational administrators, community service organizations, and regional educational groups. It is a good idea to have a lawyer and a technical engineer for the group, since ideas that sound good are sometimes either legally or technically not feasible. Once formed, the group should set up a responsible coordinating agency, preferably an established regional group, rather than a professional association or committee. The coordinating agency will then consolidate all the suggestions into a utilization plan.

If there is an operating cable system in the area, do present the plan to the cable operator. Most cable managers are reasonable, community-minded businessmen who will cooperate if presented with a feasible proposal. Not all cable operators, however, will welcome you with open arms. Today it has become fashionable to place many demands on CATV systems. These demands range from the newly enacted FCC regulations, to state and local regulations, to local group demands for many free channels. The reeling cable operator may consider an additional request for cable space as the last straw. At that point he must be convinced that any requested channels will be continuously used and that the CATV company will get all the recognition it deserves. It might even be suggested to the cable operator that an experimentation period be set up to prove that library services via cable will actually be used. At the end of this period the cable operator will have the option of cancelling the use of the channel; if the project is successful the local subscribers will put pressure on the CATV company to have it continued. If the project did not receive subscriber acceptance, then the cable space should be utilized in other ways.

When no operating cable company exists, your task may be easier. First, check with the local municipality to see if a dormant franchise exists. In the event that one does, contact the franchise holder. If possible, determine when the cable operator will begin construction of the system. Inform the operator of your plan, find out his reaction, and see if he has any suggestions for changing or improving the plan. Cooperate with the local cable operator as he begins building his cable system. Remember, the costs and problems of the cable company are generally greatest during the initial construction period; give the operator breathing space. Cooperation and consideration go a long way toward establishing a good working relationship for all concerned.

If no franchise has been awarded, it is up to the coordinating group to inform the local officials that, if a CATV franchise is requested, it would like to participate in the public hearing. Better yet, meet with local officials to see if a CATV ordinance can be enacted. Once a municipality has established a CATV ordinance, than all prospective companies will know what conditions must be met before a cable system can be constructed. Under an ordinance all franchise holders are bound by the same requirements – there isn't the usual haggling about franchise provisos by each franchise applicant. The ordinance, though it has the advantage of standardizing the franchises, has also the disadvantage of being more difficult to amend.

Some municipalities may not like the inflexibility of an ordinance, and would prefer to negotiate separate franchises with each applicant. If this is the situation in your area, the coordinating committee should attend each public franchise hearing (required by FCC regulation) and present the town fathers with a list of those franchise provisos that would best serve the public needs of the community. Prior to the hearing it is a good idea to contact the municipal officials to inform them of your plans to speak at the hearing. It is also common courtesy to contact the franchise applicant, prior to the hearing, to tell him of your intended request. By not springing demands on the cable operator at the hearing, the committee can further show a desire for cooperation rather than confrontation.

On the day of the hearing a spokesman should make an oral presentation to the municipal officials, indicating not only what provisos the group would like to see included in the franchise but why these provisos are beneficial to the community at large. In addition, do present each town father with a written copy of your presentation on letterhead stationery, indicating the name of the spokesman, so that he can be contacted in the future if the need should arise. Be prepared to answer questions about the proposal. The town fathers might want to know the feasibility of the proposal, the costs involved, and the suggested procedures for cable access. The cable operator may ask questions, too, but don't be drawn into technical conversations unless the spokesman for the group is technically competent.

The proposal itself will be the critical part of access to the cable. Don't ask that all the proposals be implemented immediately. Build delays into your proposal. When asking for channel allocations, it is best to ask for a percentage of the system rather than a specific number of channels. This way, as the cable system grows, so can your access to it. However, you must spell out a schedule for the utilization of each channel requested. A use schedule is preferable to one that is chronological. The first channel should be allocated immediately when the cable system begins operation; each additional channel should be allocated, one at a time, only after the coordinating group has shown the need for the additional cable spectrum. In addition, the proposal should specify that the cable operator has a reasonable period of time to vacate the required channels, (probably not less than six months). Don't try to squirrel away precious cable space; it is not fair to the cable operator, it is not fair to the community, and the FCC will not allow it.

The cable operator should be asked to make a free cable drop to every school and public library in his franchise area. A statement **excluding** additional set charges should also be included in the proposal. If your library or school is built in a "multiple building" or "campus" configuration, it is unrealistic to expect the cable operator to make a drop to each building. The school or library administrator must select a single head-end site, the control center of a television distribution system, and have the cable installed at that point. It is then the administrator's responsibility to see that there is an adequate distribution system to carry all the programming the cable has to offer.

Providing the community with book reviews, travelogues, etc., requires some production equipment. The cable operator may be willing to contribute some of this equipment if a modest request is included in the proposal. Don't ask for a network studio, greed is usually rewarded with nothing!

Many of the groups represented by the task force are going to want access to the cable, and the coordinating agency takes on an additional role at this point. It must set up preemption procedures so that there are no schedule problems. All access to the cable channels allocated as a result of the proposal should be processed through the coordinating organization rather than burdening the cable operator with the task of schedule maker and peace keeper. Be sure the coordinating organization will be around as long as the cable company, and that all necessary approval is obtained from the organization's governing board.

The interconnection of cable systems, which is frequently necessary to provide complete services, is difficult but not impossible. If more than one cable system is operating in an area serviced by one or more libraries, interconnection can be achieved via several methods. The first is by a direct cable connection from one system to another. This method is limited by the physical location of each systems head-end and the total length of cable used; there is a degradation of the picture if too many line amplifiers are needed to push the signal from one place to another. A second method is to have the coordinating agency or a participating group set up a microwave system. By requiring the cable operator to receive and convert down the microwave signal to a usable cable channel that has been allocated, all patrons can receive the same program regardless of the cable system to which they subscribe.

The cable operator has the responsibility to provide community services. He is utilizing public streets and access ways but is not limited to a specific percentage of profit. He is not, however, to be considered a limitless source of free services and money. Don't be afraid to spend some of your revenue on the cable services you have proposed. The cable operator has the responsibility previously mentioned, but that does not mean he must support the entire community completely.

Seek advice when needed. There are many national and local organizations, including NEA, ALA, AECT, state education departments, and state library bureaus, that will provide information on the access and utilization of CATV.

Once you have set up the committee, presented your proposal to the municipal officials, and met with the cable operator, your responsibilities have just begun. When a franchise has been awarded you must:

1 Plan programming.

2 Involve potential users in planning.

3 Be sure all facilities can receive program.

4 Cooperate with the cable operator.

5 Use all of the system requested.

6 Keep abreast of all the FCC regulations.

Cable television has great potential, but potential will not help your patrons. Utilize the cable. Harness that potential, making library and learning via cable a reality. The idea is not a dream; it takes perseverance and cooperation to begin the successful use of CATV.

Question: What about consultants? Is there a consultant's directory? Have you any comments about the free services of consultants provided by different units? Where do we go to find help? And how long is public involvement expected to take?

Wigren: Consultants for state and local officials are available from the Cable Television Information Center, 2100 M Street, Washington, D.C. I think they charge a fee.

Another source of consultants is PubliCable, which hasn't been funded yet, and so doesn't have the money to pay travel expenses. But if you tell them what kind of help you need, and are willing to pay expenses, they'll send a couple of people to help you. Sometimes, of course, these consultants can't get released from their jobs; in that case, they have to be paid an honorarium of at least $100.

As for public involvement, let me bring to your attention the United Church of Christ's primer on cable. It's called **A Short Course on Cable**, and at the very end of it there's a section called "Community Supervision," in which is recommended the establishment of an officially recognized, but independent, watchdog agency. Such an agency would be on-going and would protect the public's interest by working with the cable operators to see that they carry out their promises of facilities and service, and by seeing to it that the public has access to the system on a non-discriminatory basis, and that the funds are equitably used in relation to the people involved.

Question: How do you find out whom you should see locally about franchises?

Wigren: The Association for Supervision and Curriculum Development has published in **Interpretations** a piece called "Cable TV: Protecting Its Future in Education," which lists franchising requirements.

Sparr: In general, the place to start is the town post office. After that, there are several other sources you can contact, but you should go to your local clerk's office first to find out what the procedure is in your area.

Question: Can the assurance of interconnection be written into local franchises?

Warner: The FCC rules provide only minimal criteria; they require only that the capability of interconnection be there. But obviously, there's quite a difference between potential interconnection and actual interconnection. The problem basically is one of intergovernmental relations. If the various levels of government could get together prior to issuing a franchise, these relations could be worked out and the franchise itself could be granted on an interjurisdictional basis. In most cases, a franchise is granted on the basis of solitary jurisdiction, and no matter what that jurisdiction is, the question of interconnection occurs only as an afterthought. In other words, it's only after a franchise has been granted that anyone asks how it might be possible to establish a link with an adjacent franchise. Those of you who have been involved with interlibrary cooperation already know how extremely difficult it is to get any kind of legal commitment for the interconnection of anything. Here the problem is even more complicated. You not only have the traditional problem of intergovernmental relations, you also have the problem of trying to understand what cable is all about. It's all too confusing to try to do at once.

Question: How can a county government protect the county's interests in an area covered by multiple franchises?

Wigren: I think the best example of what can be done is what already has been done in San Diego County, where forty-two communities got together with the various cable operators and agreed on a master plan. Write to Henry McCarty, Director of Audiovisual Service, 641 Linda Vista Road, San Diego, California.

Ordinances and Franchises

Question: How do we persuade cable companies outside the one hundred major markets to comply with a community's wishes for one public access channel?

Briscoe: There are two ways. One is simply to go to the CATV operator and talk to him. Come up with some basic plan of how you would like to see the channel operated. He will probably be receptive, because what this industry needs more than anything else at present is better quality pictures and greater variety in programming to offer subscribers. In fact, back in 1966, the industry was suggesting that community advisory councils be formed to develop local programming services.

The other answer lies with the realization that when any current franchise expires, the system will have to apply to the FCC for a certificate of compliance; this means that during the renewal period the franchise will have to comply with the rules that the FCC has laid down. If you didn't meet with a a cooperative attitude before, you probably will then.

Question: How do you ensure free cabling of public institutions such as libraries?

Briscoe: My assumption is that the question refers to internal wiring. What I would like to say about that is this: most cable operators are willing to at least consider wiring buildings such as libraries at cost, and it's often a good idea to have them do it, because they're certain to do a professional job. Other wiring contractors can often lead you astray.

Sparr: That's true, but it doesn't preclude getting other bids. The cable operator certainly has the expertise; his livelihood depends on the cable operating consistently and continually. Moreover, some of these outfits that bid on school internal systems are fly-by-night organizations; some schools that took the lowest bid found themselves in trouble later on. What you want, obviously, is the best job at the lowest cost. But low cost doesn't always mean low bid.

Question: Would it be wise for a library to join forces with a particular applicant for a franchise or should it stay neutral?

Shaeffer: If the library has worked out a proposal for a franchise with someone and is assured thereby that the library's needs will be met, yes. Should it stay neutral? No.

Question: Isn't it true that, since the FCC's regulations were handed down, three has been regarded as the maximum, not the minimum, number of free channels necessary?

Wigren: My assumption all along was that the number indicated a minimum. But let me refer you to **FCC Newsletter 87959**, entitled "Franchise Provisions at Variance with the FCC Rules." Its format is that of a question-and-answer session, with the questions being answered by Sol Schildhouse, who is head of the Cable Bureau of the FCC. One of the questions that Schildhouse answers is this: "Can a franchising authority require a franchisee to make available more access channels than those specified by the Commission?" and Schildhouse answers this in the negative. You have to come up with a plan for the use of further channels before you can get more than the minimum.

Briscoe: I'd like to comment on the question of ownership. Most of the people proposing municipal or non-profit ownership are doing so for the wrong reasons, and as a result are entertaining a great many false expectations. This industry always faces great capital expenditures at the outset. This results, for about ten or fifteen years, in what is known as negative cash flow. Instead of getting money out of the system, you have to keep putting money into it, in order to try to retrieve your initial investment. The hope that the establishment of community cable systems will provide great and immediate profits for use in worthwhile endeavors is simply not realistic.

Open Forum:

What Are You Doing? What Are Your Concerns?

Moderator: Lawrence Molumby, District of Columbia Public Library, Washington, D.C.

Participants: Donald Sager, Mobile Public Library, Mobile, Ala.

Patrick Mallory, New York State Library, Education Department, Albany, N.Y.

Dawn Panasenko, Sacramento City-County Library, Sacramento, Calif.

Merry Sue Smoller, Journalism Library, University of Wisconsin, Madison, Wisc.

Paul Champion, Maryland Department of Economic and Community Development, Annapolis, Md.

Emma Cohn, New York Public Library, New York, N.Y.

Bill Williams, Wyoming State Library, Cheyenne, Wyo.

What Are You Doing? What Are Your Concerns?

Barbara Sharp, Wyoming State Library, Cheyenne, Wyo.

Kenneth Dowlin, Natrona County Public Library, Casper, Wyo.
(on video tape)

Richard Waters, Rhode Island Department of State Library Services, Providence, R.I.

Molumby: I feel it is important to bear in mind that different cities are in different stages of development with regard to cable television. In some, there is no cable television, no ordinance has been passed, and no franchise has been granted. That is the stage we are at in the District of Columbia. As a result, the strategy that our urban library has developed differs considerably from those developed in cities where CATV is operative. This leads me to suggest that the panelists begin by giving us some idea of what stage they think their cities have reached in regard to cable television.

Sager: Mobile has reached one of the later stages. We've had a CATV system for several years now, though I have to admit that I didn't know this until several months after I arrived there, when I discovered that Teleprompter had already wired a good part of the city. The first thing I did was talk the whole thing over with my staff. Then, I approached the local manager and told him we wanted to establish a reference service. He had no objection, but he did ask me what experience I had with cable television. I told him I hadn't had any, so he turned me over to his program man, who gave me a quick introduction to the subject and a good bit of technical advice as well. A lot of you have heard criticism of some cable operators, but I have only praise for ours; they helped us out a great deal.

We invested $500 in equipment. We bought a Sony black-and-white camera without a viewfinder, a nine-inch monitor, a preamplifier, and a microphone. Next, we mounted the camera onto a study carrel in such a way that it was aimed at the surface of the desk. Then, the cable operator made a drop at the regional branch, and we were ready to go on the air.

It was about that time that someone wanted to know whether we could develop any programs. We came up with four possible alternatives, and they accepted all of them. So we suddenly found ourselves committed to producing four television programs: a story hour, a senior citizens program, a program dealing with travel and history, and one dealing with science. All this is handled by various reference departments at our library.

As if this weren't enough, one of our commercial stations got in touch with us a little later and asked us to produce still another program. We've been in operation for about six months now, producing five television programs, four of them weekly, and one daily. There's also the video reference service that I mentioned. One of our programs, incidentally, is itself cabled into western Florida and southern Mississippi, so we're in the peculiar position of not only using cable but of being retransmitted as well.

Of course, we had our fair share of problems in the beginning, and I see others developing in the future. One of those we had to deal with initially was the attitude of the board of trustees, which believed that a library's primary function was to lend books. Another problem was staff motivation and training. There are other problems too. How do you determine the effectiveness of your programs? What's the best use you can make of community resources? And what about the use of your facilities by minority groups? How do you get such groups interested? How should we work with the schools in developing programs? And finally, who pays for it all? Portions of what we do are cabled into areas of the county that just aren't served by our library system.

Molumby: Today, some of us saw a videotape which depicted a hypothetical situation where a library had 7½ hours a day to fill. How many hours a day do you have the opportunity to fill?

Sager: If you include the time devoted to the video reference service, it's quite a lot. But in terms of active programming, it's about 3½ hours a week.

Molumby: It seems to me that many of the things that you can do with cable can also be done before you actually have cable; at least you can start getting into such things, and can develop perhaps some of the expertise that will be necessary when cable arrives.

What Are You Doing?
What Are Your Concerns?

Simmons: That's true. In fact, the Drexel Graduate School of Library Science is initiating a course this fall in which there will be simulation of different reference techniques. A lot of video taped role playing is being done at the school also . Role playing is useful because it helps students see how persons interact with one another and how they respond to each other. It helps them see how they say something, or do something, or how they emphasize a particular point.

Mallory: A couple of things have happened in New York State over the past year, but you might be interested in the latest from Albany. The state legislature has passed, and the Governor has approved, a bill creating a Commission on Cable Communications. This is supposed to be operating by January 1, 1973.

The members haven't been appointed yet, so obviously there haven't been any staff appointments made, but it's expected that the staff will not only regulate cable communications within New York State, but also provide some consultant services.

What I'm personally interested in is a little beside the point of what we have been discussing. I'm interested in using cable for television, of course, but I'm also interested in using it for other kinds of communications—broadband, facsimile, digital—and in possible relay systems, whether leased from AT&T or other microwave carriers, as well as in possible satellite relay.

Panasenko: Sacramento is one of the top one hundred markets, but it doesn't have a cable system yet. Shortly after I arrived there, the city and county governments, which aren't consolidated, appointed a joint legislative study committee to make recommendations to the city and county governments regarding the final selection of a franchise. Three or four months later, in December 1971, the educational community formed a consortium made up of representatives of the public schools and the colleges, including the University of California at Davis, which happens to be in another county that just got its own franchise—so already the problem of interconnection is likely to be raised. This consortium has issued an excellent report. It divided itself into three committees: a policy committee, which put out a position paper; a technical committee, which made recommendations to the joint legislative committee of the city and county governments; and a legal committee, which kept up to date on FCC changes. But in August of this year, much to the surprise of everybody, including the government officials, a press conference was called and a new group supposedly speaking for the community began meeting. It's a two-part group. One part is called the **Sacramento Area Cable Television Organization.** The other part, called **The Institute,** has an open membership and is concerned with community needs and the formation of public opinion. The **Organization** is the business and technology end of the group. Its aim is to get the franchise. Unfortunately, no lines of communication have been established between this group and the education consortium or the joint legislative committee.

Smoller: The Madison Area Library Council, or MALC, as it's commonly referred to, represents libraries of all types. Last December, MALC formed a cable committee, of which I am co-chairperson. The committee consists of about fifteen or twenty librarians, with a hard-working core of about five or six. Its purpose is to study cable, to develop library uses for cable, to inform other librarians in the community about cable, and to take whatever action may be necessary to foster the development of cable in the Madison area. The committee members, by the way, do all this on their own time.

Our first effort was to prepare a statement on library use of cable for the Governor's commission hearings. Next, in cooperation with University Extension and the State Division for Library Services, we planned a three-day institute on cable for Wisconsin librarians. Using borrowed equipment, we are informally learning video production techniques, and will soon be assisting the Division for Library Services in producing a series of video tapes for circulation throughout the state. The Division has also funded an information packet that we have prepared for distribution to all area libraries. In October, we plan to hold a colloquium on cable for the University of Wisconsin, and we have offered our services as classroom speakers. A survey of libraries and cable television was co-sponsored by our committee and the library school.

We're now embarked on our most ambitious project. Our franchise has two more years to run, and Madison is in the process of writing an ordinance to replace the current one, which is now seen as inadequate. The people have been invited to attend the hearings and make their needs felt. In order to do that, of course, they have to be informed. So we felt it our duty as librarians to offer the public open access to our information resources. Accordingly, we sent 650 letters to city officials, the heads of community organizations of all kinds, and anyone else we thought might be interested; we offered them complete access to our information resources and invited them to informal meetings at the Madison Public Library. These meetings were also advertised in the local newspapers.

What Are You Doing?
What Are Your Concerns?

The response was phenomenal. Meetings were held throughout a whole week. We discussed what cable is, what its advantages are, and what the station and local situations are with regard to it. We stressed public access programming and the need for cooperation and involvement. We urged those in attendance to discuss what they had learned with others in the community.

Another large meeting is scheduled. Representatives from the cable system and the governor's commission will speak, and the community-produced video tapes will be shown. The goals, structure, and name of the people's group will be decided at that time also.

Champion: I'd like to take this opportunity to describe a preliminary step that we're taking in Maryland with regard to the future use of cable in our state. It's an audiovisual systems survey of all the television and associated support systems now existing in libraries, the community and state colleges, and the public schools. Our aim is to get some idea of how large a commitment to audiovisual systems the State of Maryland has at the level of public institutions. So far, we've found that, apart from two major counties, the commitment is slim. I mention this because it seems to me that such a preliminary survey is a valuable undertaking, if only because it lets you know where you stand, and lets you know how far you have to go if you want, for example, to establish a state-wide hookup.

Williams: Video taping is imperative for an expensive workshop where 60 percent of your librarians might not attend, due to long traveling distances, small libraries, or apathy on the part of some. It seemed economically feasible to us, therefore, to invest in quality video tape equipment—about $57,000 worth of studio-type cameras, still half-inch. Production started in what we considered good workshop areas. We soon realized that doing a complete production involved approximately 10 hours of work for every minute of complete tape. This consideration must be faced, if for instance, you are not using an outside speaker or a workshop, but will use such a video taping instead.

Sharp: I would like to describe some of the projects we have handled in the past year with our equipment.

A few workshops, including a series on oral history and the use of local history programs in the library, were taped. A group of experts in the field of state environmental programs did a series of workshops.

Our edited video tape of an annual trek by the Wyoming Historical Society has been broadcast locally in Cheyenne.

The Spell Spinners of Sheridan, Wyoming, a special program of one of our libraries, received a national award at ALA. Children in the community were taught games and songs on a spontaneous basis by people trained by the librarian. The action took place wherever the children were; a video tape of this is available at the library.

Our A/V staff did a 29-minute production explaining a revision in the cataloguing department. In-service productions of this type involve more technical problems and time. Our second full-length production was a video version of our state library's Five Year Plan. This video tape of the state library's activities and how it reinforces our current goals and objectives will augment a written plan submitted to the Office of Education.

Our video equipment has been used in diverse ways: absent staff members video tape presentations for the state board; interviews are taped with authors as they are available.

The next important step is to have a cable drop in the state library. A proposal has been written, hopefully leading to a state-wide network. Already there are 27 cities in Wyoming with cable facilities. Our hope is to start producing programs in the library, set up a permanent studio in the state library, and begin production on that basis.

Cohn: I would like to credit a pattern that has enabled us to get a toehold in video and cable. We work through the New York State Council on the Arts. Because the State Council operates a media pool, we could borrow half-inch video equipment from the Media Equipment Resources Center—the only charge being a $3.50 per hour technician fee. So, for $500, we could give a workshop for young people in the New York Public Library.

In this workshop, we heard about the July 1972 Public Access Celebration. A number of video groups funded by the State Council decided to concentrate the best of a year of public access programming into a three-day celebration. Funded by the Council, Teleprompter, and Sterling Manhattan Cable Companies, viewing centers were set up around Manhattan. Even more exciting was the opportunity for people visiting the centers to make programs and handle equipment for the first time. It seemed to me that the equipment handling often proved more popular than the programming.

The opportunity was given to us in the library to establish three viewing centers. Although no library had yet requested cable installation, we proceeded to do so. Teleprompter responded magnificently, installing four drops in the Countee Cullen branch and two or three in other branches. Now there are permanent viewing centers ready to be activated if the community asks.

Waters: I'd like to make a "non-progress" report on the state of Rhode Island and cable television. Rhode Island prides itself on being the state of the independent man. This means that nobody cooperates and we pride ourselves on getting people together for one day. For a while, there was great cooperation among the universities, businessmen and lawyers. Suddenly, it fell apart. Public hearings have been going on for nine months. Franchises are granted by the Commissioner of Public Utilities. There are no criteria and the franchise for life is **$50**, if you can get it. No one is even certain how many franchises will be awarded.

The ultimate decision on cable TV in Rhode Island may depend on the November elections. If the franchise is granted before November 1st, it will possibly be a Democrat-controlled system.

Another problem arises in the fact that Rhode Island comes into the top 50 major market areas conflicting with two other fringe areas. On a good day, you can get 12 channels so many people do not see the need for cable. We do not know how the operator will make a profit. We know cable is coming and we have at least two years to plan and to do something. If anyone wants to see a very poor example of how a franchise is being granted, let me quote one sentence from a copy of the law: "The franchiser has to be fit, willing, pay $50, have some financial backing, and he can have the franchise."

Dowlin: (Presented in video tape): In February 1970, the Natrona County Public Library in Casper, Wyoming started taking concrete steps to explore the use of television technology and a Community Antenna Television System to provide library services.

On February 15 we went on the air using borrowed equipment in a temporary set-up. The experiment was exciting. It was documented in **Library Journal**, September 1, 1970.

The library purchased a one-half inch black and white recorder and accessories, a Sony AV 3600 recorder with a Sony 3200 camera. With this recorder the library taped segments of the Wyoming Arts Council Grant which placed artists of varying disciplines on the bookmobile for six weeks. We also did training tapes on shelving books, the use of a multi-button telephone, and other routines. We made a tape on story-telling to train Candy Stripers from the hospital, and used the recorder to train sixth grade students to read stories to first graders. By placing the recorder on the bookmobile we showed the introduction to the Summer Reading Program to all of the second graders in the District. We found the equipment to be very durable, easy to use, and compatible with other people's recorders.

In the fall of 1971 LVO Cable, Inc., the parent company of our local system, granted the library a contract allowing use of Channel 12 by the library for five years with the only restriction being that of not allowing commercial programming.

The Board of Trustees approved the purchase of a transmitting system, a production console, a color camera (a Shibaden FPC 1000), and a color recorder (a Panasonic 3120). The library was being completely remodeled at this time so television had to wait a while to become operational. Jim French, the audiovisual engineer for Colorado State University, provided excellent advice in the selection of equipment. We went on the air in January 1972 and have been on the air ever since then, except for rearranging the system several times in order to better it.

Our system is continually being revised so it is hard to make an overall assessment at any one given point. We are now doing or planning to do these facets in the immediate future.

1 In-house use of the recorder. We have found that video tape is the most flexible of all media. We can record various activities on the spot and have an immediate record of that activity. We have used the system for training tapes and we hope to make more. We plan to make self-instructional tapes for our users. Items like how to use an 8mm projector, microfilm readers, the card catalog, and an over-all tour of the library, as well as an introduction to new patrons can be played on demand. We will transfer the tapes from our one-half inch tape to three-fourths inch tape. The cassette playback unit is much easier for persons unfamiliar with the system to use. The open reel unit is easier to use in production and editing. We have transferred our story hour series to cassette and allow the children in the Junior area to play them whenever they want.

What Are You Doing?
What Are Your Concerns?

2 In-house use of the recorder with other persons' materials. Several companies have started to use video tapes as the medium with which they communicate with their local representatives. IBM is one example. Their local representatives use our equipment to view tapes. The local chapter of the Data Processing Managers Association views tapes produced by their National Association.

3 Telecasting other persons' productions. We have telecast a workshop for the Chamber of Commerce on the Occupations Safety and Health Act. Over 6500 persons watched this telecast of tapes from the National Chamber which was reinforced by a local workshop. There is very little software that addresses itself directly to library needs. It is anticipated that it will increase as time goes on. This library should be in a position to lend or sell tapes in the near future. We will keep all taping and telecasting within the framework of the overall objectives of library service. In other words, all productions will relate to informational services or the promotion of recreational reading.

4 Telecasting productions that we are responsible for. We have telecast one-time productions such as: a Halloween show for two years, a Christmas show for two years, and the library festival held at the dedication of the new building. We did find that a series format was more viable since the public can become attuned to watching at a specific time. One-shot programs require much more publicity through the other media. During the summer of 1972 we telecast a weekly preschool story hour. It was called "Growing with Stories." These are the tapes the children may watch from cassettes in the preschool area. We are hoping to do a series for senior citizens, one using drama students from a high school, and one in the humanities area.

5 The Video Reference Service. The aspect of television that has the most far-reaching implications is the Natrona County Library's Video Reference Service. This system has undergone several transformations since its implementation in January 1972. The current system is designed to utilize a black and white camera, which gives greater resolution, allows the color unit to be used in production without having to take VRS off the air, and is cheaper to operate. The unit can be remotely switched to allow the transmission to originate from the production area yet give VRS the ability to override the repeating message. We hope to have a third signal source that will let us show book reviews and advertisements during the off time. We are also investigating the use of a repeat cassette unit to telecast specific messages continually.

Open Forum

The Natrona County Public Library is committed to provide service through any communications media available. This project was funded through the funds available for the construction of the new wing. The cost varies according to the appetite. A VRS could be put on the air for less than $5,000. A color system costs $15,000, and a color production system from $25,000 and up. A television system is like any other system, it may cost as little or as much as you have to spend.

Cable television is here to stay. It is imperative that libraries become familiar with its uses and misuses. Cable television is not only a fast growing industry, it is one that may have long-range ramifications for us in the library business.

The Status of Federal, State, and Local Regulations

Frank Norwood

The regulation of the cable television business has followed a strange pattern. In the early days, when most persons were concerned simply with getting better reception, practically no one was concerned with the question of regulation. No attention at all was paid to it at the local level, and the Federal Communications Commission thought it had enough problems to worry about without taking on cable television as well. As time passed, however, and cable grew increasingly important, this "benign neglect" gave way to considerable concern over regulatory jurisdiction.

Let us consider first the change at the local level. Once it became apparent that cable television really was a money-making proposition, and that entrepreneurs were prepared to bid against one another for the local franchise, the city fathers, always alert to the possibility of increased revenue, quickly realized their opportunity. So franchise fees based upon a percentage of the gross became the rule as cable grew across the United States. Competing cable operators would place before the city fathers a thick sheaf of documents having to do with the number of channels, the importation of distant signals, the use of non-standard channels, and other considerations, practically none of which the city fathers could understand. There is one thing, however, that every city father can understand, and that is when company A offers 4 percent of the gross and company B offers 6 percent. It does not require a degree in electrical engineering to know which is larger. Thus, in a great many cases, francises were granted—often for long periods of time—without much consideration being given to what rights the city had to renegotiate the franchise, to examine the service that was being given, to ask about channels for public use, or to control the rates that were charged the customer. They were

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Status of Regulations

granted solely on the basis of the one thing the city fathers understood about the matter, namely, a percentage of the gross.

Nevertheless, in the early days, everyone loved CATV. The people loved it because it enabled them to see clearly a football game that before had been nothing but a mass of snow. The advertisers loved it too, and for the same reason that the commercial broadcasters did, because it enabled Channel 6 in Philadelphia, for example, to reach markets that before had been closed to Channel 6, because of the blockage of terrain, or tall buildings, or what have you. Every broadcaster is always happy to welcome new people to his audience, because ultimately, as Nicholas Johnson has pointed out, what the broadcaster sells is not advertising time, but you. He sells the attention of his audience, and the larger the audience, the higher the price.

Everybody was happy, therefore, until it became apparent that if one could bring in Philadelphia, one could also bring in Lebanon, York, and Harrisburg. Such a realization did not please broadcasters, whose attitude, in general, was this: "a CATV is fine as long as it extends my signal into someone else's area, but not when it extends somebody else's signal into my area." Given this state of affairs, it was inevitable that appeals should be made to the FCC.

Initially, the FCC asserted jurisdiction only over those cable systems that imported distant signals by means of microwave and that received their licenses to do so from the FCC. Finally, however, the Commission asserted jurisdiction over CATV in San Diego, even though the system there did not use microwave; the broadcasters simply installed large towers and powerful amplifiers and grabbed signals off the air. San Diego became a test case in the courts, which finally upheld the FCC. The broadcasters, incidentally, were not really dismayed by this. On the whole, they were rather pleased. At least it let them know where they stood. Prior to that, the industry had suffered greatly from something it still worries about, namely, regulation by a variety of agencies. Of course, that the courts have granted the FCC ultimate jurisdiction by no means precludes jurisdiction at other levels of government. But it does mean that the FCC can overrule whatever may be decided at other governmental levels. The franchise terms in New York City, for example, specifically stipulate against pay television operation on the cable. But the FCC has ruled otherwise and has, thereby, rendered the local franchise regulations in New York null and void.

The Commission's exercise of its regulatory powers has undergone considerable change over the years. For a long while, the Commission imposed what amounted to a freeze on the top one hundred markets. This was because it has been rightly concerned over the possible adverse effects CATV might have on over-the-air television. Such concern is not without foundation. CATV might, for example, bring so many competing signals into a given area, dividing the audience pie in that area into so many pieces, that individual broadcasters would find it impossible to attract an audience large enough to sell to an advertiser. There is no documented evidence that this has ever happened, but it is theoretically possible.

From 1950 until just recently, the Commission's proposed solution to this problem was UHF. It was hoped that UHF would answer the need for greater variety in programming and would also afford some protection against the kind of saturation broadcasters feared. That hope proved unfounded. To begin with, for years, no one had any sets that could receive UHF; in fact, in the early fifties, several broadcasters invested in UHF only to find out later that there was no one who could watch it. Moreover, in terms of the reception one gets and the power that is needed to deliver it, UHF is just not competitive with VHF. So lately the Commission has turned its attention to CATV.

Now, if one regards CATV as simply a means of bringing a station, say from New York to Philadelphia, then it is scarcely anything to get excited about. But if one believes in Ralph Smith's "wired nation," then the question inevitably arises as to how one is going to get this nation wired up. Specifically, you have to ask yourself, "Can we commit public resources to this? For if we cannot, how is it going to get done?" Actually, the United States faced a parallel situation only a hundred years ago when it was realized that it was in the public interest to have a nationwide railroad network. The solution that was hit upon then was simply to give away large tracts of land across the middle of the United States in order to attract the capital necessary for building coast-to-coast railroads. A similar incentive has to be devised today. Clearly, if one is going to attract the kind of risk capital necessary for developing cable television, then one must be prepared to offer the viewer something more than he is getting now. No one is going to spend money to have a wire inserted into the back of his TV set in order to see programs that he could see just as easily with the help of rabbit ears or an outside antenna. Similarly, no invester is going to be interested in CATV until he knows that a considerable number of viewers are.

There is also another problem. It is self-evident, I think, that the producer of a television program has certain rights. He has invested money in his program and he wants to sell that program in as many different places as he can. But suppose we allow a CATV operator to import into a particular area a station that is broadcasting a program that the producer has not yet sold to any of the local stations in that area? Obviously, by allowing that, we effectively reduce his changes of ever selling it there. On the other hand, suppose he has already sold it to one of the local stations, but that it has not yet been shown? In that case, if we allow a CATV operator to import a distant station that is broadcasting the program, we effectively prevent the local station from advertising the airing of the program as a first, as a consequence of which its value to advertisers is greatly reduced.

Basically, the problem confronting the FCC was to determine the difference between **enough** and **too much**. The solution it arrived at ultimately was a set of graduated formulas: the formula that was applied in the first fifty markets was different from that applied in the second fifty and so on. Specifically, in the top fifty markets, severe restrictions were placed upon the importation of distant signals. The number of distant signals that could be imported into any given area was sharply limited, and restrictions were placed upon the importation of copyrighted programs already contracted for in any area to which they might be imported.

These FCC regulations were first announced in a letter to Congress and then were issued in the form of a report. Among other things, they provide a mandate: one channel for education, one for public access, and one for government use are to be made available without cost in each of the top one hundred markets. The regulations also put a ceiling on how much the local authorities can extract from the cable operator in terms of franchise payments; they designate a reasonable franchise fee as between three and five percent. Moreover, though the Commission itself does not negotiate any franchises, it must approve any franchise that is granted. It does this by issuing a certificate of compliance. The rule-of-thumb now is that a franchise is automatically approved if the fee involved does not exceed three percent, but when the fee involved is five percent some explanation is required. When a franchise fee is greater than five percent a waiver must be obtained before approval is granted. Such waivers can be had, but only for good reason.

In terms of channels, a lot of unnecessary wheeling and dealing is being indulged in on all sides. Educators, municipal authorities, and even librarians are making wild demands for lots of channels. Unfortunately, the competition for franchises is so great that cable operators are willing to accede to even the most unreasonable demands, since they know that later on, after they have been granted a franchise, they can appeal to the FCC to release them from having to comply with any impractical conditions that may have been attached to the franchise. The fact is, persons who make rash demands are altogether likely to fall into the hands of charlatans who will match such demands with equally rash promises. If that happens we will all be the losers, because that is when really oppressive regulation will begin. And if that happens it will not be because the industry has refused to provide us with certain channels, nor because the FCC has insisted that we work within a framework of rules. It will happen because irrational and irresponsible negotiation has forced the powers that be to conclude that we are not capable of deciding what is good for ourselves.

Discussion

Shank: I would like for a moment to disregard the letters "TV" and consider the regulation of just cable. Eventually, and for the third time in its history, this nation is going to be wired. (The first time was with the telegraph and telephone systems, the second was with the electrical power system.) And any future system of cable communication is going to have to be monopolistic, if only because our telephone poles and underground conduits would never accommodate many different competitive cables. Such a monopoly will require regulation on our behalf. In return for the right to be the common carrier, a cable company would have to agree to seek only a modest return on its investment. I don't know how all this will come about, of course. Such an enterprise will first have to attract the necessary risk capital. There will also have to be less variability among local ordinances, particularly if cable systems are going to be linked together. And all this must, in the interest of both economics and the public good, be subject to effective regulation.

Question: There have been some questions about copyright. Would you care to comment on the restraints resulting from copyright?

Norwood: It was assumed for a long time that a new copyright law would be needed, but recent court decisions that have changed the role of CATV in regard to copyright have enormously complicated matters. The first copyright decision came in 1966, within a week of another decision granting the FCC primary jurisdiction over cable television. United Artists had sued the Fortnightly Corporation, which runs a CATV system in West Virginia, for broadcasting

United Artists' copyrighted programs without paying any copyright fee. The court drew a distinction between performance and reception, and decided that the CATV operators were engaged in the latter, and since the 1909 copyright law applies only to performance, the decision favored the Fortnightly Corporation. Later CBS sued Teleprompter Corporation, among others, when they used microwave to import distant signals, whereupon the court, in effect, extended its earlier decision beyond the horizon. In general, the court's position appears to be that CATV operators don't have to pay copyright, except perhaps when showing programs obtained under contract.

Question: Is there any ideal role for the states to play in regulation?

Norwood: The cable industry would really like the states to go away, but I don't think they're going to. The industry is seriously concerned over what it calls the three tiers of regulation: it is regulated, first of all at the local level; second by the FCC; and now the states want their piece of the action. Actually, the industry has not been completely unhappy in those cases where states have taken over regulation completely, because at least then they know with whom they have to deal. The industry's real concern is over having to deal with a multitude of regulatory agencies. My own view is that the roles proper to the respective levels of government should be defined more clearly than they are now. The states could be useful, for example, in preventing city governments from negotiating outrageous franchises. There are other things that the local government is too close to, the federal government is too remote from, and that the states might be just right to deal with.

Question: What do you think about setting up, on the state level, a separate agency exclusively concerned with the regulation of cable television?

Norwood: I'm inclined to favor it. The industry is afraid that if it is placed under the jurisdiction of the Public Utilities Commission, for instance, the Commission will not be able to distinguish it from the gas company, the phone company, or the electric company, and that its fair rate of return would soon be regulated. And almost everybody who has given the matter some attention has agreed that a strict rate of regulation at this stage of cable's growth would be inappropriate. Just because cable has been very financially successful in the past, and promises to continue being so, is not reason to assume that its success will actually continue. And the areas into which cable is moving now in the major cities are all very undefined. Consequently, anything that seems to impose a constraint on the rate of return is bound to turn off the flow of capital that is needed to keep the industry growing. That is why state regulation is of such great concern to the industry.

Cable Comes to Midtown

A Video Tape Simulation and Playback

Brigitte Kenney

On Tuesday morning, participants engaged in a role-playing situation. They were divided into groups of five, and each person was assigned a specific role: a city councilman, a cable operator, a librarian, an educator, and a community organizer. All received a written case study and a more specific description of the role they were to play. After some brief instructions, the group had a warm-up period; they then began discussion of the case. Two groups were video taped by other participants, thereby giving eight participants an opportunity to engage in a production problem and learn more about using video tape equipment. The commercial firm video taped one of the groups which was also video taped by attendees, thus giving a visual representation of both the video tape crew and the actual discussion.

Finally, the two groups which had been videotaped were played back to the entire audience for reaction. Reactions were varied and quite strong. People had the privilege of stopping the tape at any point during the playback to comment on specific statements or situations. Each of the groups took a somewhat different approach, and it was interesting to compare the two, as well as to note how knowledgeable the audience was about production problems encountered by the two production crews. Approximately half the comments during the playback period were concerned with technical problems while the other half dealt with content of the playback. Participants felt that this experience had allowed them to get more involved in a live situation, and that they better understood what was involved in a negotiation process such as the one outlined in the case study.

The Scene

Midtown is a sprawling metropolitan area, encompassing densely populated low-income neighborhoods, suburbia, and a dying downtown business district which has been hurt by shopping centers all around. It ranks among the 100 major television markets and finds

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itself in a typical situation: an ordinance was written some years ago, without much thought being given to its content, to provide for franchising of cable operations. The city was, rather arbitrarily, divided into three distinct areas for franchising purposes. Several cable operators are now interested in applying for franchises in the three areas. Three of these are very large (multiple owners), while four others are locally formed companies, financed by various business interests which smell a quick way to realize a profit.

City Council

The City Council, after having written the ordinance, "took the matter under advisement" and nothing has been heard about cable since then. They have been apprised of the intention of various cable operators to apply for franchises, and are reluctant to do anything about it; the problems of soaring school taxes, increased costs for street maintenance and other services, and an ever-climbing crime rate are sufficiently complex to keep them from taking on yet another problem, which seems difficult, and in which no councilman has expertise. They assume that the ordinance is O.K., that it will allow them when the time comes to write a franchise that will net a tidy profit for the city coffers, something they are eager to have. Yet all sorts of citizen groups, the cable operators, and speakers at their own national meetings seem to see something in cable which the Council has not yet grasped.

Community Demands

Lately, several groups, notably educators, community organizers, and librarians, have attempted to bring to the attention of the City Council some of their concerns about cable. They want to talk about the shortcomings of the present ordinance, which does not contain specifics on free access channels, two-way communication, 20-channel capacity, non-exclusive contracts, nor does it provide for Citizens' Advisory Boards.

Representatives from the three groups have met, and although they disagree on a good many things, areas of agreement include (in addition to the above):

- no more than three percent of the annual revenue should go to the city; any remaining funds available should be spent on studio facilities and production costs;
- studio facilities should be provided by cable operators;

- 20 percent of channel capacity should be set aside for educational, governmental and public access purposes;
- interconnection should be planned for libraries and schools for ten years hence;
- a "state of the art" clause should be written into the franchise to make sure that developing technology will be incorporated into the system as it develops.

The Characters

A meeting is being held at City Hall, at which **Mr. Councilman** presides. He has been designated by the Mayor to find out "what these people want.' Mr. Councilman has invited one of the local cable companies to send a representative so that he can "put all these people at ease" about the ordinance. He is hoping that this man, representing one of the smaller local companies, will sing a loud song of money worries and prove to the other members of the group that all these things they want just cannot be done. (Mr. Councilman himself really favors one of the larger companies, because he owns some of its stock and hopes for a nice little payoff.)

Mr. Cable Operator is in a dilemma. He really likes the idea of public access, having worked for the Bigtown Cable Company, where he had experience with this sort of thing, but his Board does not. How to play both sides?

Miss Community Organizer has her own worries. She fears that the whole thing is going to turn into a rip-off, with the people being left out as usual. There is a lot of interest in her community about cable; all sorts of ideas have been put forth on what to do with it. But who's to prevent the "system" from running things, with the people having no say?

Mr. Library Director is there with his own ideas. He would like to have responsibility for the percentage of channels set aside for public use, educational and governmental purposes. His is the most neutral agency in town, and he feels he could render a real service to the community at large, as well as further his own plans to turn his library system into community information centers, which would be vastly enhanced by cable.

Cable Comes to Midtown

Mr. Assistant Superintendent for Media Development representing schools, is afraid that the schools are not going to get sufficient channel capacity to do all they want. He is intrigued with the idea of having programs available to his teachers at any time they need then, rather than on a fixed schedule, as is presently the case via CCTV. Thus, he is willing to do battle to get as many channels as possible for his system. Too, he really doesn't know if the Library should be running things—what do they know about schools? And they are beginning to compete with the schools, too, by applying for funds under the new federal Open Universities Act to become the study and resource centers for this exciting new program. What will happen to the School Board's Adult Education Program?

The Task

Mr. Councilman is presiding over the meeting, whose purpose it is to promote discussion about inadequacies of the present ordinance, and desirable features of a franchise. His main purpose is to "quiet things down," and he is exercising all the authority he can to achieve this. Is he going to be successful? Can all these conflicting interests be brought together on some sort of common denominator?

The Procedure

Stage I. You are on a TV talk show and you have been given **three** minutes to state your position about cable in Midtown. This gives you a chance to acquaint your fellow group members with your thinking. Each member of the group makes his three-minute statement and then goes into the next stage.

Stage II. The meeting is called to order by Mr. Councilman. Discussion lasts twenty minutes. At the end of this period Mr. Councilman recommends that a written report be prepared for the Mayor. Please spend no more than ten minutes on the report which should be in the form of recommendations.

Note. Two of the role-playing groups will be video taped. Choice of groups will be up to the camera crew. After break there will be a replay. Please use your group's report to react to the replay if you wish. Or react to it as an individual—whichever seems preferable to you.

Video Tape Simulation

Roles

Community Organizer

You are active in one of the three regions designated to be franchised soon. Your job is to be in touch with your community's various service organizations and to represent their interests, if they so wish, before the city council and other bodies. Recently, you have sponsored a series of meetings in your community to acquaint the citizens with the opportunities inherent in cable, particularly the three public access channels. You are interested in making sure that these three channels do not remain the limit but that more are available when needed. You have several definite ideas on how to use the "soapbox channel" and you have talked with the educator and the librarian about use of the other two. You'd rather see the three of you in there than having one of the channels used for city government only. You are inclined to agree with the librarian that his might be the agency to administer the use of the 20 percent of channels you want to see set aside for public use, but you don't really trust him. Is he establishment or is he properly community-oriented? You also don't trust the cable operator who wants to come in; he will make a quick killing and you think he should use some of his money for the community. You are concerned about his opinion of you since you had a sit-in at his place to protest his supposedly being opposed to having more than three public access channels.

You want the educator to assure you that informal adult education programs will be given sufficient time on the educational channel and that it will not be gobbled up by daytime in-school use only.

Cable Operator

You are manager of the Midtown Cable Company, a local concern recently formed by a group of local businessmen who are aware of the financial possibilities inherent in cable. You formerly worked for the Bigtown Cable Company and have quite a bit of experience with local access channels. You like the idea—but your Board does not. They are interested in making a quick killing, not understanding that this takes much heavier financing than what is available, and that pickings are likely to be slim for awhile. You feel that encouragement of public access is in your own best interest, but you do represent the Board which feels otherwise. How can you bring them around, while representing their view to this group? A difficult thing for you, to be sure.

You cannot see how you can furnish a completely equipped studio right away, nor can you see laying two cables instead of one for two-way communications. It is just too expensive to do this right now; the money is not available. Maybe later?

You are unhappy with the community organizer since she instigated a sit-in in your place of business, protesting the rumor that you are not in favor of more than the minimum three public access channels. So you are not going to be too polite with her (why didn't she check out the rumor with you first?)

You are frustrated because no one seems to understand the dilemma you are in, but you decide to take these people into your confidence. Maybe they can help you in some way.

Library Director

You are the director of the Midtown Public Library. You have recognized that your library can become revitalized and perhaps reach people who never before used the library, via cable. You would like to administer the channels set aside for public, governmental and educational use, since you feel you are the only really neutral agency in town, and too, this fits your concept of the library's role as an information switching center for your town.

You have recently turned your branches into information centers for their local communities and are excited about the possibilities here. If you could provide information services over cable, beamed to individuals and communities, as well as special interest groups, you could reinforce this role.

You are not too happy with the community organizer; she has shown little understanding of what you are trying to do, and is trying—you think—to set up her own empire. How to reach her is an immediate problem.

You have received nothing but startled comments from members of the city council whom you have approached with your idea about administering channels; they just cannot conceive how the library could possibly be competent to do this. So you have some convincing to do.

And then there is the rivalry between you and the school people; you sense that they are not exactly enamored of your ideas related to the University Without Walls, which you think should be supported by your library.

You are trying to exercise some leadership in the group assembled here to show them that you can do this, that you are indeed able to administer the free channels.

Councilman

You have been in office for a very long time; you've seen it all and heard it all. Here is this newfangled idea of community access to cable which isn't going to work—you know this—since people watch old movies and not their city council at work. You are going to humor these loud people but your heart is not in it. You believe that the city should profit from this new cable thing and you want to get as much out of the operator as you can. He might even slip you a little under the table.

You can see that schools might use cable, but libraries? Libraries are to store books, not to fool around with technology. And those community groups are likely to give you some trouble if you let them on the air.

The ordinance is just fine the way it is; leaves everybody lots of leeway. You want to see the franchise written just as loosely, for obvious reasons. That way, if the operator doesn't "fulfill his commitment" to the city, he can be thrown out, and another put in. You definitely favor the big boys (the multiple owners) because you own some stock and it's been climbing. So you'd rather bet on them than a small, local guy with insufficient financial backing.

Educator

You are the Assistant Superintendent for Media Development. You have been studying this cable thing for some time and are excited about the possibility of having programs available any time a teacher needs them, rather than only at specified scheduled times, as CCTV provides now. You can see where your school system needs much more than just one channel to take full advantage of the opportunities available via cable; you are going to press strongly for at least three free educational channels.

You are dubious about the librarian's desire to administer all free channels. Does he know what he is doing? Does he understand the school's problems? Does he listen too much to the community organizer who wants "all for herself?" Is he going to be in competition with you since he is talking about having a library of video cassettes in support of the University Without Walls, for which the library rather than the school system is to be the base? What about your adult education program? Is it going to die after he gets going?

You are very upset with the City Council at this time because it has just refused to bail out the schools which are in dire financial straits. Now you need more money to get this cable thing going, and the system is hopelessly in debt already. You really don't know whether to push this thing or not; if you get no money you cannot implement anything. And yet . . . what an opportunity!

Interactive Cable System (TICCIT)

Kenneth Stetten

Mr. Sidney Polk of the MITRE Corporation made a slide presentation for which no transcription is available. He based his presentation in part on the report reprinted below, and on two, more recent ones, which were also published by the MITRE Corporation.[1] Mr. Polk also discussed the MITRE report "Urban Cable Systems" in some detail. It is a very comprehensive plan for an interactive cable system for the District of Columbia. This report is available in abbreviated form and contains detailed plans for cable applications, an economic forecast for the proposed cable system, and technical specifications.[2] The article which follows is reprinted here by permission of the author.

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[1] The MITRE Corporation, Toward a Market Success for CAT: An Overview of the TICCIT Program, M72-73 (McLean, Virginia: The MITRE Corporation, June 1972).

Stetten, Kenneth J. and Lay, Rodney K., Introduction and Interim Summary, Vol. I of Interactive Television: A Study of the Technical and Economic Considerations Attendant on the Home Delivery of Instruction and Other Socially Related Services Via Interactive Cable TV. M72-200 (McLean, Virginia: The MITRE Corporation, December 1972).

[2] The MITRE Corporation, Urban Cable Systems: Summary. M72-57 (Washington: the MITRE Corporation, May 1972).

For copies of these reports, which are available free, write to the MITRE Corporation, Westgate Research Park, McLean, Virginia, 22101. Use publication numbers when making request for copies.

Introduction

This paper proposes a broadening of the scope of current cable television (CATV) content: planning to include a wide new range of services which would have high potential social impact: **interactive** television services. Interactive television is made feasible by combining cable television with a system like MITRE's TICCIT* system, which is described in the Appendix. The following assumpions underlie my rationale.

a We are interested in expanding the services to the general public through their home television sets.

b We believe that these services should be available on demand, not scheduled. This convenience is important to the successful "marketing" of these services.

c We believe that conventional "Educational television" alone will be adequate either for rigid instruction in courses where there is a large body of information to impart or to provide a substitute for other services described below.

An underlying theme of these candidate services is to reduce individual social and political alienation (or de-alienation), caused by the one-way nature of our "dialogue" with society. By **de-alienation** I mean establishing reasonable substitutes for the interactive communications that people miss when their surroundings change from a small community to a large urban community.

The media, up to now, have been used almost entirely in a one-way mode: they transmit information to the public who sees them as increasingly insensitive and resistant to feedback from individuals, at least relative to what individuals feel they should be receiving. This leads to the commonly expressed feeling of impotency shared by concerned people everywhere, both young and old, when they fail to influence the course of events in their community and nation.

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*Time-Shared, Interactive, Computer-Controlled, Information Television

Services Possible

The following are examples of services that could work to reduce this alienation. The economic, technical, legal and political feasibility of the services suggested is the subject of other work by this author and others.

Education

We need to return to the Socratic method of individualizing teaching (the sitting-on-a-log approach), where there is a continuing dialogue between teacher and student. We wish immediate response and reinforcement to the student, individual control over the pace and content of the material; an ability to stop and start the material whenever the student desires; and, we want facilities that will permit the student to proceed at his own pace. Not only should formal education be convenient and responsive and fun, but it should be totally disassociated from the "lockstep" features we have all grown to abhor. I speculate that, regardless of the production imagination used, when large bodies of knowledge are to be covered, most students beyond the elementary level will find scheduled cinematic learning (ETV) not much more acceptable than they have in the past; however, I will be delighted to be proven wrong in this regard. Video cassettes will be very important to this new form of instruction, but I think their use must also be managed (like conventional textbooks) economically, to maintain student interest when working by himself.

Democratization

The voice of a speaker standing on a soapbox will reach only those few within the range of his voice. Even the local organizational services provided by CATV for special groups cannot provide response information at the personal level, cannot interact. (Note that interactive material automatically separates itself demographically without any further geographical segmenting of the CATV channel.) If the home terminal allows us to access poetry, radical newspapers, or anything else that groups or individuals wish to make available to the community—on demand—we have successfully separated the media from the message. In other words, each individual could have the economic and physical ability to express his thoughts to anyone who wishes to "tune in on them." He accomplishes this by placing his thoughts in the TICCIT data base, and the TICCIT "menu" constantly lets the whole community know what is available for instant at-home subscriber controlled accessing.

Participation

Using the home terminal to applaud or to boo a member of the school board, while the meeting is going on, or to ask pointed questions, once again allows the individual to establish closer contact with the decision-making process affecting his family, home and community. (The same technology allows feedback to a live teacher on CATV, if desired—a Stanford University interest.)

Politization

At election time, a citizen can access—on demand—information on candidates, their position on issues, an explanation of referendum items (e.g., specific political platform positions for comparison). If desired, he may review this material prior to visiting the polls.

Protection

The same alienation that disheartens the average citizen is an advantage to the criminal. It allows him to roam undetected in urban society. Placing mug shots of criminals and photographs of stolen cars in the data base for browsing or indexed retrieval allows concerned citizens to be on the alert for dangerous persons and to help their police force in a meaningful way. Signature and credit-card checking that utilizes such an economical graphic display network can have a major economic effect on credit-card use. Automated alarm systems have frequently been utilized, but the use of the two-way visual system described below under INTERACTION allows correction for the false alarm problem and reassures the traveler that his fireplace is still there.

Employment

Again, accessing on demand detailed information on job openings (from the state employment agency?) along with photographs of the place and people employed there could greatly enhance matching needs of the individual and the employer, creating the advantages found in a small community.

Social Care

Use of the even more futuristic two-way TV-PHONE (an inexpensive version of Picturephone) allows such services as a substitute for home visits by physicians, followed by telediagnosis and prescription; social counseling; probation checking; drug monitoring; not to mention interaction with a live teacher in conjunction with mechanized systems.

Information

Presently, social protocol does not allow the use of display advertising for most social services (for example, social security information, VA information, health care information, food stamp information, etc.). It does not require a large stretch of the imagination to consider expanded "yellow pages" for these social services, again interactive, available to the citizen on demand.

Interaction

The CATV version of Picturephone (a common carrier function), which we've dubbed TV-PHONE, allows many more private social interaction options. The imagination boggles at the possible impact of this. Channel space should be allocated for such a function: unplanned, undirected use of this new "face-to-face" communication possibility. Anyone who doesn't appreciate this is either too old to be romantic or too young to have his children living away.

Communication

The ability to access yesterday's edition of the world's newspapers on demand, section by section, and paying only for what is used, and even to deliver mail, are both, to me, technologically and economically realistic goals for the not-too-distant future (5–15 years), using some version or extrapolation of MITRE's TICCIT concept.

Companionship

Expecially for the recluse, the invalid, and the aged, but also for others, we think that the machine's ability to play games with the subscriber, such as bridge, chess, blackjack, etc., will be great fun. I can easily imagine a cult of computer nuts growing up around such programming. Two-way games with other shut-ins are quite feasible.

Shopping

Again, for the shut-in, but also for the person not willing to fight the traffic and crowds downtown, the graphic capability of the TV to allow tele-shopping for the latest bargain should offer new services for which there is a direct measure of reward for business: expanded gross sales revenue.

Gambling

Off-track betting, and other types of gambling, could be administered with the ultimate efficiency via such terminals. The television display not only can show the odds and the results of the bet, but also the action itself, for example, horse racing. Subsidy of education with off-track betting via this means would be particularly pertinent; a piece of the action could subsidize a large part of the cost of the interactive hardware installation used for whatever purposes.

Brief Description of TICCIT

TICCIT provides computer-generated or controlled information that can be selectively received and displayed by individual TV sets. Utilizing one television channel on a wideband cable, 600 separate TV sets can receive separate information provided by the computer at a typical rate of once every 10 seconds. A local signal "refresh" device which incorporates a video cassette recorder allows the TV screen to display the information at the standard television rate of 60 fields per second. Using either the telephone or the cable system, each subscriber can call for any kind of information the system is designed to provide, independently of all other subscribers. Pictures and sound can be sent as well as printed text. At the present time, software programs for this system are being designed under the sponsorship of the National Science Foundation to provide individualized educational courses for home or school use. These types of courses could soon make it possible for poeple to take accredited courses at home, using computer-aided instructions and computer-aided grading systems, thereby permitting people to obtain a large part of their college education without attending formal classes. This approach is being seriously considered by the State University of New York under the "open university" concept.

The TICCIT system also provides capabilities for selective distribution of materials during "off hours" so that, for instance, a movie or book or newspaper could be sent to a subscriber's video cassette recorder to be stored for later display on his TV set whenever he wants it. Thus, he could receive and record daily news transmissions or take courses in French or mathematics which utilize conventional filmed lectures, interlaced with one-frame-at-a-time questions, equations, etc., for "stop-action" perusal or study. In addition, the subscriber could, under his own control, request socially and politically oriented services for his personal viewing.

Excluding the costs of a home TV cassette recorder with a single frame refresh capability, it is estimated that by 1975 such services might be provided at a cost of 25 cents or less per terminal hour, depending on hardware costs and the extent of utilization of the system.

It is sufficient here to point out that the enormous capacity of wideband telecommunications cable systems, when used in conjunction with appropriate "head-end" programming, makes it possible to provide a great many educational, information retrieval, and other services that are entirely outside the realm of conventional TV programming and CATV distribution systems.

The TICCIT Computer System consists of an inexpensive mass storage, for example discs, to store all the material to be sent to individual users, including pictures, alphanumerics, voice and computational routines; a fast minicomputer with specially tailored indexing and retrieval software; and a special high-speed electronic system to convert computer output into TV display output.

Open Forum:

What Are You Doing? What Are Your Concerns?

Moderator:	Hoyt R. Galvin, Galvin & Associates, Charlotte, N.C.
Participants:	Edward de Sciora, Port Washington Public Library, Port Washington, Long Island, N.Y.
	Merry Sue Smoller, Journalism and Mass Communications Library, University of Wisconsin, Madison, Wisc.
	Marcelee Gralupp, Boulder Public Library, Boulder, Colo.
	Margaret I. Cleland, Public Information Program, Connecticut State Library, Hartford, Conn.
	David Wilder, Three R's Council, Long Island, Bellport, N.Y.
	Charles Townley, National Indian Education Association, St. Paul, Minn.
	Richard Chapin, Michigan State University, East Lansing, Mich.

What Are You Doing?
What Are Your Concerns?

de Sciora: At Port Washington, a diversified community in Nassau County on Long Island, three grants from the New York State Council enabled us to explore our community structure and the possibility of developing a dialogue within the community. Cable doesn't seem to be a reality for the next three or four years. Our greatest potential is in involvement with the video process. Community people we have trained now know how to use a portapak. We have had many small group meetings; we have been involved in community life. We have reached a point where the community knows what it will do with an access channel once we get it. We want the community 1) to be aware of the implications of a free public access channel, and 2) to see the library as the possible production center. Our archival function is evident in the series which is a video/aural history of Port Washington.

Smoller: The Wisconsin survey of libraries and cable came about through a graduate seminar on cable communications at the University of Wisconsin. The University of Wisconsin Library School provided for the printing and distribution of the survey which was sponsored by the Madison Area Library Council. The study is not complete, although the survey has been coded and analysis is preceeding. Hopefully, it will be published in an appropriate publication.

I would like to give a profile of what is happening in our state in libraries. We all agree that there are responses libraries can and should be making in regard to cable television. Their first responsibility is not only to act as a community resource center for information, but also to publicize that fact actively and agressively. Basic to this is the assertion that the librarian himself must be knowledgeable about cable, and that a reference collection on cable be assembled and kept current. Secondly, believing that the library should operate in the public interest and in defense of the public interest, the library should join with other public interest groups when the need arises. This implies a real knowledge and involvement by the librarian in the community. Third, it is essential for librarians to start thinking about the present and future use of the cable and what implications it presents.

Information concerning cable communications prior to our survey had been limited to guesswork. The survey's hypothesis was that most librarians have little knowledge of what is going on in cable. The survey itself was conceived as an informational tool. In the process of answering the questionnaire people would be stimulated to think about the library's role. Certain survey questions were asked for specific reasons, e.g., to get information for programs already in the planning stage, such as a video tape exchange and the formation of PubliCable type groups. Practical considerations of time and financing determined which libraries should be included in the survey.

Of the 71 cable systems presently operating in Wisconsin 55 are in communities with libraries. Cable systems in Wisconsin vary. The most common type is the community antenna system whose function remains strictly the provision of better signals. Fourteen systems in areas which have librarians have local origination capacity.

Of libraries surveyed 22 percent reported patron requests for information on cable television; 42 percent replied that they were building a cable collection; 6 percent were involved in activities such as providing meeting rooms, sponsoring discussions on cable, or presenting special displays; 68 percent indicated that they had neither read articles on cable, talked with the cable operator, or had some personal information about cable.

One of the key questions was an open-ended question in which librarians were asked what they considered was their role in cable communications for their libraries, now and for the future. To this question 36 percent responded in varying degrees of sophistication; 8 percent could see no role at all for libraries; 57 percent could make no response to this question. I think you can draw your own conclusions.

Gralupp: Of all the things that have been happening in Boulder, I believe the most relevant is part of a position statement that the Library Commission has written on the cable operation. The Library Commission is serving as the citizens' advisory board for cable in Boulder.

This memorandum describes the aspects of a community cable TV system that we of the Boulder Library Commission have come to believe are most important. Our point of departure was the question. How can a cable network best serve a town? A cable network has enormous potential for a city. It is a communications medium with extraordinary capacity and versatility. As we explored the possibilities that cable network offers, we discovered a number of central principles.

Cable TV systems originated as a means to rebroadcast television programs to homes with poor reception. The reason for building the first systems, however, does not define their whole nature. A cable system, once installed, can best be understood as a communications network. With proper design, the cable network can carry signals in two directions, from central office to home receivers, and from homes to the central office. Indeed the FCC's 1972 regulations for cable systems require a modest two-way capability, as used for opinion polling.

Such use of the cable system shows that cable is far more than just an entertainment medium. A cable can carry any kind of information, including broadcast television. We believe the latter aspect will soon be subordinate to the other aspects of the system in three ways: its share of the channels of the system, its impact on citizens' lives, and its revenue to the operator of the system. The operator of the system may tend to allocate all of the channels as soon as he can. The Commission believes that a good allocation will leave room for diverse information and communication services.

Building the cable network needs a large capital investment to be recovered from revenues. The system's operator, therefore, must charge for some services. Many cities have a single fee to cover all TV services. In the public interest, that fee is set low so that most people can afford the services. Some services should be free to all. These include services which help the operation of a modern democracy, those that enhance the health and safety of the whole community, and those that reduce the cost of public enterprises.

The cable network opens up distinctive ways for citizens to participate in government. Public opinion polling can be widely employed to increase people's opportunity to influence decisions that affect them. Such a service should be free. The FCC's required public access channel and the channels for municipal government and schools should be available free and not used to enchance the commercial operation. The Commission believes, quite properly, that there are many services that will generate revenue. Few of these rates should be regulated; the cable operator ought to have latitude to experiment in his offerings and rates without ponderous negotiation and review. Our firm belief in the need for a group of free services, available to all, may at first sound bad for revenue. However, each set has a counterpart for which revenue may be charged. The free fire alarm, for instance, is electrically the same as the intrusion alarm which could be sold as a service. Opinion polling about civic issues opens up voluntary opinion polling about consumer goods, but offered to market researches for a fee.

A cable system will have a very large initial cost in order to build the distribution system. If it has an attractive revenue structure, a cable system should become very profitable after a few years. The financial facts of life will govern the planning of a good system. The cable operator will be better able to add services and equipment after the initial construction is behind him and the income begins to flow.

Cleland: My remarks will be a progress report on library pre-planning for cable in Connecticut.

The Public Information Program (PIP) is charged with publicizing library services available in Connecticut and serving as library information ombudsman. PIP serves as a dual channel of communication between the State Library and the librarians in the field and, more importantly, between libraries and the people of Connecticut with particular attention to minority groups. The feedback function of PIP is designed to help direct library change to meet unserved needs.

Our interest in cable is fourfold: 1) to use cable as a vehicle to advertise the services provided by libraries in the hopes of reaching all potential users of the library; 2) to use cable as a tool to provide improved conventional services, particularly on-demand information which the Connecticut Library Association has singled out as a priority goal to be achieved by 1976; 3) to use cable as a McLuhanesque listening device, to learn from the community what is needed and how libraries can meet those needs; 4) to use cable as a system to deliver new services to meet those needs.

Fred Glazer, West Virginia: Mr. de Scoria, what use have you been making of your tapes since you have no cable system?

de Scoria: Our immediate concern is actually the process involved and the involvement of people in the process. The tape itself has been used in small format playback for dialogue purposes. In some cases, senior citizens have used it for their own needs. Our Port Alert drug program in Port Washington has used a tape of youngsters talking about drugs to lead into a discussion of the drug scene among the youth. Right now, however, our primary goal is to train people and de-mystify video.

The cost of an operation like this can be considerable but, in the terms of existing priorities, I do not find it so. Priorities must be reordered since too many conventional programs and services are not working. Video offers one aspect of information flow with which we can identify. The present cost is $10.50 for a half-hour tape and $23.00 for an hour tape. The question of emphasis and realignment of services in the cost of personnel must also be answered. We must also decide how priorities are to be reordered with regard to the number of access channels available.

Cleland: Even if there is access, even if there are studio facilities, money is needed for expertise in programming, even at the community level. Connecticut's Public Utilities Commission levies an 8 percent tax on all utilities, including cable television. Now, we have learned here that the FCC has set a limit of 5 percent on franchise fees. There is talk of pushing legislation to set aside a certain amount of money over and above the franchise fee. In Connecticut the only agency making money is the Public Utilities Commission. I think we should get rid of that tax on cable as a utility and I would like to have the option of exploring with our legislature the possibility of segregating some of these funds to cover public programming. This idea of allocating a certain amount of the franchise fee demands careful consideration.

Wilder: The Three R's Program in New York is concerned with resources for people involved in research, whether it be purely academic or whether for industrial research and development. I am involved in providing for the research needs of 6 academic libraries, 3 research institutions, 20 assorted industries and engineering firms, and a variety of hospitals. The most that we can do is be a switching center. Presently, we communicate by teletype, telephone, and automobile—methods which seem rather primitive in the 1970's.

I have been quite excited hearing about the TICCIT system and the possibilities of two-way communications and connecting cable systems. In the emphasis put on public access and programming at this conference, do not forget the research function of the library. It would be good if the copyright laws could be modified and we could actually transmit the text of materials that people want. What I am primarily concerned with is bibliographic information. With the communication methods we have, it doesn't make sense to build all kinds of information and use them by way of the printed book. As you are concerned with franchises and system developments, remember that you have a research responsibility, even in the public library. Remember that we too, when the technology is developed, must have access to these systems.

Molumby: The presentation of the TICCIT system prompts me to note that librarians seem to be lacking in aggressiveness. Early this spring, the Council of Governments of the Washington Metropolitan Area commissioned the United Research Corporation to report on two particular aspects of cable, 1) the technical question of interconnection, and 2) in what ways the governments in the Washington metropolitan area would use cable. Because of the aggressiveness of the Washington area librarians, the Council of Governments specified to the consultants that primarily five government services should be studied, naming the libraries as one of them. The librarians also decided not to let anyone put words in their mouths as to what the role of the library should be. Happily, the report had good accounts of the libraries, which underscores the importance of being aggressive.

Townley: HEW funds have been used by us to provide pilot projects for library service among the Indians. Hopefully, other people will see and avoid some of the pitfalls we are creating. Our basic goal is to provide information to American Indians on three reservations by assisting them in creating their own library information service. This does not have too much application to cable since 80 percent of the homes are without electricity.

I would strongly urge anyone who is involved in the cable industry to write into all technical requirements a bilingual capability. Only 30 percent of the Indian population speaks English. Another problem arises from the fact that material on the American Indian from the past has been created by white men, not Indians. A user needs survey last year indicated that the 300 Indian tribes in the country are not interested in the generalized form created by tribes other than their own. In the matter of franchising, the Indians have an advantage since the reservation controls the land and the access to it. We must also remember that 60 percent of Indians live in town.

Chapin: I would like to give you a brief view of future plans for the public library. We just formed a task force on lifelong education which will have an expanded program in continuing education, part of which will be an external degree. In order to satisfy the resource needs of those taking the external degree, public library adult study centers will be established where course material from the University will be available. At that point we hope to provide equipment to libraries with cable so that the educational channel can be used. If there is no cable, we will provide television cassettes for play in the public library.

When East Lansing finally gets wired, we would like to be able to show the cable company that we need more than the one channel required by the FCC regulations, and show proven need of two or three channels. We hope to involve teachers, students, and citizens in developing a program for East Lansing.

Cleland: In 1964, some states began to regulate cable television as a utility so engineers and those involved in cable in Connecticut have a considerable backlog of experience. The Utilities Commission has stringent standards for equipment and exacting financial criteria for cable franchises. Already one franchise has been revoked because class ownership of media was not disclosed. Uniform accounting procedures have been established.

Connecticut's Public Utilities Commission examines all applicants for a franchise at the same time and permits them to cross-examine one another. Whatever the state engineers may have missed in the hearing, the applicants will surely bring to light when they do the questioning.

We have thirty franchise areas in the state, fifteen of which are now operational. The Commission divided the state so that each franchise area has four to five towns, with poor and affluent areas alike. The state thinks it works because no one has withdrawn his application because he has some poorer towns in his area.

The TV networks have been fighting a furious rear guard action to keep cable out of the lucrative top 100 market in Connecticut. They have filed innumerable objections with the FCC to stop the encouragement of cable. They have been poring over the Commission's records hoping to find irregularities.

A public reference service or any good programming on a regular basis is really a marketable, negotiable item with the cable operator—if it's good. It might be traded off for other facilities, the kinds of things which libraries could do, particularly in the community at large, that are not marketable or negotiable. Cable operators might be glad to see industrial reference services which they could sell to business and industry developed by libraries. Libraries seeem to be in a prime position to be the "missing link" in the community.

de Sciora: Mr. Polk mentioned that the cable operator might supply a one-inch camera which is stationary equipment. Schools in our district have been trying to simulate broadcast type material with studio type equipment and it isn't working. When we introduced to the PTA the possibility of ½ inch portable equipment, it forced the schools into a new utilization of the potential of video. A whole range of opportunities opened up as a result of being exposed to portable equipment.

Our work in the nursing homes has been significant. The staff has come to a new understanding of the homes' residents through the use of video. The equipment has also opened new vistas for the residents. The use of video has brought about a greater human concern for people in the community.

Those of you who are considering entering the video market should seriously consider 3/4-inch which gives the ability to use color. You can then use Sony cartridge machines which are portable and of high quality.

Networking via Cable: Problems and Prospects

Russell Shank

Reactors

Louis B. Early, COMSAT Corporation, Washington, D.C.

Ralph Lee Smith, MITRE Corporation, McLean, Virginia

Frank Norwood, Joint Council on Educational Telecommunications, Washington, D.C.

Of all innovations in recent memory, cable television has the potential for being the most expansive communications technology for libraries. With cable, we have a communications highway of abundance. I realize that during these two days you have been primarily concerned with "television"—that is, graphic presentation of images—programs as we normally think of them on TV.

But if we emphasize the word "cable", we focus on the essence of this technology. Cable is a broad highway for all types of telecommunications, and this highway is so wide that telephone, video, FM, and AM radio broadcasting, telegrams, and facsimile **could** fit side by side and move along the same line simultaneously without interference. A considerable amount of terminal equipment has yet to be invented to allow us to do this, but the channels are there.

Don't worry, by the way, if you have trouble conceptualizing **what** would travel along this line, or **how** it would be done, or how a net-

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work would be configured technically, physically, or administratively. These are matters that are not easy for even the most sophisticated technicians. If you can come to grips with a general notion of networking on cable, its potential and its problems, perhaps then the real elements of some of the issues we have been discussing, such as how to fill a channel, and who will serve as **gatekeeper, scheduler, file holder,** and **funder,** will begin to come clear.

It would be useful for you to examine, as soon as you can, several proposals for networking. There are studies that have come from good organizations, and they get at some of the questions that have been raised during the past two days regarding the place of the library in cable activities.

Two of these are particularly useful:

a **Communications Technology for Urban Improvement:** Report to the Department of Housing and Urban Development. Washington, D.C., Committee on Telecommunications, National Academy of Engineering, June 1971. (PB200317)

b **Urban Cable Systems.** MITRE Corporation, McLean, Virginia, 1972.

The National Academy of Engineering study visualizes four basic networks in the modern city:

- **telephone network** to carry pictures, voice, and written materials between two points;
- **network based on the existing CATV systems** with information transferred from a central facility to offices and homes;
- **interagency broadband network** with 30 channels in both directions connecting major public institutions and large city commercial enterprises;
- **multi-purpose city sensing network** to collect data on weather, pollution, traffic flow, power status, etc.

Networking Via Cable

The MITRE Corporation study of cable for Washington, D.C. proposes two networks of cable systems for the city.

- **A telecasting net** which would consist of a number of hublike distribution systems with subhead ends for neighborhood service areas. Programs would be scheduled, or would be available in special service offerings as subscribers wanted them. Connections would be direct to subscribers' homes and would include up to 30 channels downstream and 4 upstream for limited return signals.

- **A point-to-point net** which would serve institutions, agencies, and corporations. It would be demand-oriented in that services would not be prescheduled. Users may want to send large volumes of information, requiring rapid connections and switching. There would be an equal number of channels in either direction. The point-to-point net would include four components or subnets—a federal, a municipal, an institution, and a higher education network.

These two studies complement each other, and contain in a generalized way the basic structures that are evident in all such proposals. The NAE report considers the services offered by all kinds of telecommunication capabilities (phones, radio, and cable): the MITRE study concentrates on the cable capability. The point is that the experts recognize two different classes of use of cable -- one as a delivery system from centers to many locations and one as an agency information interchange system.* The studies also recognize two modes of operation—a demand and a scheduled mode.

Think of cable in these terms. It will be a telecommunications line that will allow TV programming of the kind you normally know. In addition, CATV will have enough capacity so that users can talk back to their television sets to modify the display to suit themselves. And in library terms we should be able to do the following on cable:

1 On-line cataloging.

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*There is another network configuration--a few centers to a few centers net. (This is not precluded by the two modes above.)

2 Interlibrary loan message transmission.

3 Facsimile transmission.

4 Voice communication.

5 On-line bibliographic searching of data bases such as MEDLINE, etc.

6 Interbranch administrative communications.

7 On-line circulation control.

8 Demand delivery of filmed and taped presentations.

The creation of cable networks and the full utilization of them is far from a foregone conclusion. Cable faces formidable technical, legal, and social problems, and threats to viability from competing capabilities. The rest of this talk is devoted to some of the problems or problem areas of greatest concern in networking via cable.

Existing telecommunication services have created an expectancy of immediacy among users. Real-time interconnections—a switching problem—will be required before cable can compete with the telephone in its ability to connect any subscriber to any other person on the line for direct and secure communications. Switching to create pathways on demand in broadband communications is technically difficult. Several systems have been invented, **DISCADE**, **Rediffusion** and **Dial-a-Program**, but they have had limited success in application. The problem for the user now is that such systems must be installed at the time the cable is laid or strung; to change the latter would be too expensive. As yet the cable owners have been reluctant to take on the added expense for such installations.

Cable television systems are built to be inward looking—that is, they are installed to deliver programs from a head end into communities. The nation's cable systems do not, therefore, reach out to link each to the other. This they must do if we are to apply their information delivery capability to the networks of libraries already in existence within states, and extending over large geographical areas, going through many cities.

Can they be linked? Yes, but with some difficulty and expense.

Networking Via Cable

Cable systems can themselves be linked with additional cable, but over long distances broadband (high frequency) signals on cable are quickly attenuated. Hence many, and as yet expensive, amplifiers in sequence are required to pipe signals down coaxial cables. Signals get distorted as they pass along, and exceptionally good amplifiers are required so that our TV sets will not see double. Our best bet is to send the signals through the air, hence the cable network of the future will undoubtedly be some combination of line-of-sight, ground-based microwave system and satellite communication facility. As yet the United States has no domestic satellites, but they are coming. And at least two of the eight proposed domestic satellite systems contain provisions for linking cable systems. But even when we get satellites, we will not be home free, for there will be much competition for space on the signals that are beamed to the satellite for direction to remote receivers.

FCC regulations require that some of cable's great capacity be used for two-way communication. This two-way capability will be limited, however, for quite some time. Meeting even the minimum FCC requirements will add 15 to 30 percent to the capital cost of a single-cable, one-way distribution facility. Two-way service requirements will compound already complex software problems. And home terminal equipment will be costly—adding perhaps from $150 to $340 per subscriber. We are likely to get subscriber response services, such as opinion polling or alarm monitoring, requiring short data responses and some computer aided instruction by the end of the decade. Shared voice and video service will also come early. But subscriber-initiated services, such as catalog ordering and ticket sales in which individuals can request service or information from a variety of sources, and point-to-point services in which individual subscribers can transmit voice, video, or data information directly to another subscriber will come much later.

In spite of the array of terminals you have seen here at this institute we have a lot of invention and development ahead of us, particularly, but not exclusively, of home terminals to accommodate the full range of capabilities of cable television. The American genius will, I am sure, prevail, and we will have considerable flexibility and ease of operation of home terminals, but only as the market place suggests a good return to the manufacturer—and this is in large part a function of what programs, signals, and messages can be developed to put out over the systems. The greatest demand will be for a simple home TV set with cable channel selectors built in. Frame grabbing will come later, and a home set with data keyboard, frame grabber, recorder, image refresher, playback and recording equipment will come much later—and probably at a relatively high cost. Most likely we will still work in the institutional setting with separate terminals for various functions for quite some time.

Technical standards in all aspects of cable, and protocols for network operation are absolutely essential. And attention to standards is a never ending task. The areas of concern in standardization are seemingly endless. We need standards in gating, and message address systems for frame grabbing. We need performance standards for broadband switching. We need standardization in recording and playback equipment. We need standards for wall connectors for wire outlets in the homes. We need standards for the interconnection of all equipment. And standards must come early in the game lest the investment in non-standard equipment and facilities make it economically unfeasible to change. (Consider now the problems of changing the 525-line raster for scanning television images to something finer that would be suitable for reading 6-point type on a TV screen.)

We shouldn't shut our eyes to competing telecommunications capabilities. Some of it is powerful, and can't be competed with on the basis of cost of investment for facilities alone. Some is available in places where cable will not arrive for many years. Some may be so far out in front that it will be hard to catch up with for a generation. The NAE study referred to earlier makes it clear that the best urban telecommunication service will be comprised of a mix of these capabilities.

- **For voice communication** we have the phone systems and radio (AM and FM and special services such as mobile radio). For voice alone the network or phone service in this nation is unparalleled and will be hard to beat for switched service. Conceptually it would be nice to tie cable and telephone capabilities into one system. Technically this is possible, but, politically, legally, and businesswise, may never come. Radio is of limited use. In urban areas the spectrum is already filled to capacity. Cable might help radio communications by carrying signals to neighborhoods where they could be broadcast to local installations, including mobile units such as bookmobiles in the immediate vicinity at low power. Many such transmitters could thus operate with different messages without interference that would come from higher power blanketing of a region.

- **For data communication** we have the phone system, the telegraph, the budding special purpose common carriers, and again radio. Cable is a serious contender here. Remote access to computers and communication among computers has been handled by the phone companies—but not as well as technology would allow. This, added to the phenomenal expansion of the data communication market, is what has brought the special purpose common carrier into being. But the phone companies are responding, creating both the digital communication capability required and the hardware to use the same lines that are used for voice. Some of the special purpose common carriers are having difficulty funding the building of their communication facilities, and at least one has begun to examine the manner in which it might lease space on cable systems for distribution in the cities. Cable will definitely be a power in this field.

- **For image transfer** we have regular commercial TV, other special over-the-air service such as Instructional Television Fixed Service (ITFS), Picturephone, facsimile via telephone and microwave on various radio frequencies, (access to which requires licenses from the Federal Communications Commission), and of course, cable.

Nothing can compete with commercial TV broadcasting on a per-receiver investment cost in equipment to transmit signals. But access to commercial TV is limited, and signals are not well received everywhere. Regular TV is not economical to use for transmission of still pictures—cable is. Picturephone is limited in its availability, and will require huge amounts of wire and expensive interconnections to become ubiquitous. But it is a switched service allowing full voice and image transfer between individual subscribers. Cable will not be a switched service for a long time. Facsimile by phone is limited because of the bandwidth requirements for high quality and speed, by the slowness of voice grade lines, and the cost per page of it all. But even further, facsimile for libraries is limited by copyright restrictions and the problems of preparing pages of books for transmission.

Copyright restrictions militate against facsimile transfer of text via cable. I will predict, however, that cable will be such a powerful tool that publishers will produce cablecasting editions of their works, particularly reference books. These will be in the form of computer files, tape cassettes, film, and microfiche. They will be sold with copying licenses. And they will require more terminal equipment—boxes and retrieval devices—to get to the right frame.

Electronic transmission systems offer great opportunities to monitor and tabulate uses of copyright material for compensating the copyright owner. A simple way would be to put copyright material out on pay TV; owner ID signals could be built into the text for automatic recording every time it was used.

Having a network is different from having the services to put into the network. Cable will not eliminate the very difficult and costly software problems of creating data bases, whether they be computer files or text on film, or whatever, and of providing protocols and search strategies to query and tap the data bases. These problems we now have, and they will continue to exist. In fact, cable may exacerbate the software problem by creating a broader, more dispersed user population with a wider variety of more urgent demands. One can only hope that the demand will attract subsidies, subscriptions, fees, and risk capital needed to prepare data files, indexes, structured outputs, etc.

Where do libraries fit into all of this? The prime advantage of cable is its capacity to deliver information directly to the home. Will not the library be bypassed in all of this? I think not. The public will, for economic and security reasons, be excluded from direct access to many point-to-point networks, for example the many files of records maintained by city governments. The library could serve as the agent for the public seeking access to the information utilities maintained by various agencies. The library will sit as a node in a municipal network—or an educational network. It could pull information off the network on demand for its users.

The library could serve as the citizen's strategist, helping to identify the reference sources in the various networks that will serve specific problems. It could serve as the reference source to feed information into other agencies in the point-to-point networks. Thus, while businesses might have their own stock quotation services on cable, the library will serve them graphic access to corporate annual reports. While city building inspectors might have their own zoning, platting, code indexes and image files, the library could serve them the latest architectural graphical standards from the literature, and other reference and textual material concerning building materials. The library could create or hold reference and archival materials for agency networks and could tap other files held by the agencies for citizen service networks.

I think the library is the logical agency for this purpose. It is a neutral agency. In public library systems, outlets are maintained in the neighborhoods. They are thus ideally situated to serve as subhead end locations for neighborhood access to cable. Libraries are open at hours when many other agencies (e.g., schools, government offices) are closed. And they have a philosophy of service for all ages.

Reactors:

Early: The Library is basically a source of information. Satellites and cables are information transfer systems. Cables are uniquely suited to local distribution while satellites are uniquely suited for versatile long distance communications. Thus we have the ingredients of a successful joint venture. As time progresses the geographical distance over which satellites are economically preferred will continually decrease and their use will increase. While we may never see satellites interconnecting libraries within one city or county, it will not be many years before they can and will provide a wide range of communication services between cities throughout the nation. One proposal currently before the Federal Communications Commission would interconnect over 220 individual metropolitan areas.

I've had 2½ days to learn about libraries and their needs for communication networking. I've learned very little thus far to indicate the existence of significant needs for long distance communications. But this doesn't bother me too much because I know that when the technical means to perform becomes available the needs will become visible. This phenomenon has been proven over and over again in international and domestic communications systems, so my challenge is to tell you about communications satellites—and in 10 minutes that's difficult. Let me start by asking you to write to me at COMSAT posing questions and letting us know how we can provide a service that will be of value. Also, consider us a resource of your library system. We prepare several pieces of descriptive and reference material suitable for research on all educational levels. Librarians who express an interest represent an ideal way for us to tell what's happening in the world of satellite communications.

It was 10 years ago that President Kennedy got the communications satellite ball rolling. As a result, a company called COMSAT was organized. This company is a profit-making corporation, a regulated public utility listed on the New York Stock Exchange, responsible to the President, the Congress, the Federal Communications Commission, the Security Exchange Commission, and 114,000 shareholders. It shares with other American communications common carriers the ownership of earth stations in the United States, and represents the United States in an international joint venture of 83 nations (INTELSAT) which owns and operates a global system of satellites. Currently, there are more than 68 earth stations involved in providing communications between approximately 50 countries. Many people think of satellites as a TV medium, which they are, but the greatest utilization of the system is by telephone users. In 1971 there were 3562 half-channel hours* of television service in the INTELSAT System. Telephone users are by far the largest single user group and in May of 1972 occupied 2529 voice circuits. I encourage you to think of satellites as a versatile communications network available for a broad range of communication needs from high speed data and color TV to a simple request for a reference source.

Looking into the communications future of the 1980's, one can visualize satellites broadcasting direct to libraries, businesses and even individual homes. To develop the necessary technology and prepare the way for such a capability, the National Astronautics & Space Administration (NASA) has contracted with Fairchild Industries for the development of the ATS (Applications Technology Satellite) F&G satellites. These satellites will be placed in geostationary orbit in 1974 and 1975 to provide technical data and an experimental program to pioneer advanced satellite educational television, data relay, air traffic control, and information transmission systems. Of special interest to educators and librarians will be the educational television experiment to Alaska, Rocky Mountain States, and perhaps Appalachia. Television programs aimed at early childhood education and career education will be broadcast to 200 small earth station receivers (costing about $1500) in rural public schools, a Bureau of Indian Affairs Center, as well as conventional TV station and cable systems. This experiment should start in late 1974. The Instructional Television (ITV) experiment in India will also deserve watching. A ground station in India will transmit ITV through the ATS-F to a network of some 3,000 inexpensive community receivers in rural and remote villages. The program material will be oriented toward improvements in occupational skills, increased food production, assisting in family planning, improved health and hygiene, and teacher training.

Even with enormous governmental economic support, widespread use of this advanced technology is well into the '80's. The technology will soon be available, and the need for it exists now, but the economic support, which is tremendous, does not. Perhaps this is not all bad. To learn how to use this technology will be a long and painful process. So the experiment will be good to get educators and others excited, involved, and prepared. I encourage you to watch those experiments closely. They will be important in shaping your future.

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*Half-channel hours are the sum of transmission times plus the reception times for the earth stations participating in the telecasts.

To get to more immediate communication resources, several organizations are proposing to develop nationwide satellite communications networks. The differences in these proposals are important to the proponents and to the government, but the net result will be a flexible broadband communications network that hopefully will be responsive to a wide variety of developing needs. But don't expect ATS-F capability.

One of the significant problems in this satellite controversy involves ownership of the various components, and whether competition is to exist in communications, or whether the common carrier approach is preferred. Competition does not now exist in communications networking. Have you ever tried to get a second telephone company to come in and provide an improved telephone service? Selected communication alternatives do exist, but basically communications tend to be a monopolistic enterprise. Thus, the need for considerable public participation. Public participation requires public awareness and education. That's where you come in—and where I come in when you need communications.

A communication system or the library alone cannot solve public problems but we do provide the tools that enable people to solve their own problems.

Smith: I'm sure some of you may have been puzzled by the comment I made in my speech the other night that you cannot transmit a broadband signal over a cable more than ten or twenty miles. And you find here a situation in which it is proposed that a signal shall transmitted over several thousand miles, and furthermore that it shall be forty, fifty, sixty, or eighty channels. In case this should cause some confusion, I want to explain that the wire used here and the channel described is a narrow band channel. These are capable of transmitting a voice grade signal or a signal of a single tone, but they are not capable of transmitting a television signal. When we come to the transmission of what is called a broadband signal, that is a very different thing. I don't remember the exact figure, but something like 640 FM radio channels can be transmitted over the same amount of spectrum that is used to transmit a single television signal.

In the meantime I want to call attention to something that I think has been neglected. In speaking of two-way transmission and various types of transmission by cable, we have talked about a very conventional type of transmission which is "one-to-many." A second way for two-way capability is "many back to one;" everybody out there has some way of returning some kind of a signal back to headquarters. That leaves out something the telephone can do, something very important, and the question is can the cable to it. The question is, Can 12 people at a time talk to each other by means of the cable? Does it have this third capacity, which I call small-group conferencing? This capacity has not been much discussed at this meeting. It appears, from what I understand, that it is more or less possible by cable. It is now possible by telephone because telephone is a completely switched network. The whole purpose of this network is to put one person in touch with another person. This is not the primary purpose of the cable network. The primary purpose is to serve one-to-many or perhaps many-to-one. But very interesting questions arise as to whether or not it might be possible to get 12 people together by cable. If you could do this, or if, with a certain amount of additional investment you could create a system that would do this, it seems to me this would greatly influence how libraries use it and how schools use it. These are two parties that have a great stake in the development of this particular potential.

With that in mind, let me describe to you what I saw at the National Cable Television Association Convention in May. There was an exhibit of a system created by a relatively small manufacturing company called Vicom. The exhibit was a simulation of a classroom experience by cable. The instructor had in front of him three pieces of equipment. The first of these was a television camera, which was focused on him. The second was a television or monitor, and the third was another television set or monitor. On monitor number one he saw himself. On the second monitor he received information from a computer. For example, an instructor gets on the wire at 8 p.m. and says, "The trigonometry class will now meet. Is everybody here?" And throughout the city 12 members of the trigonometry class have a terminal at which they press a button or combination of buttons, and on the monitor their names then show as being present. They are seeing the instructor, just as he is seeing himself on the monitor. Then he begins his classroom discussion.

If somebody has a question, that person pushes a button, and on a monitor that is connected to the computer a sign indicates that "Joe" has a question. Then the professor says, "Yes, Joe, what is your question?" and throws a switch and than all 12 persons can hear Joe. They cannot see Joe because this is not a wide-band return but they can all hear him. In this way they get together. The only picture on the screen is that of the instructor and his blackboard or whatever he is using, but everybody can hear Joe. Maybe somebody else has a question. The instructor may comment on Joe's remark and then say, "Well, apparently Bill has a question, too." He throws a switch and then everybody can hear Bill. This entire system is under the control of the instructor. Nobody can cut into the line without the instructor knowing it, at least under this configuration, and the instructor controls who says what and when. As soon as he does the appropriate thing with his keyboard, everybody can hear the person that he has designated to speak. I think this is a tremendously important capacity and I hear relatively little discussion of it.

Norwood: I'm sure you are left, as most of us are, with the idea that things are in such a state of flux that perhaps the best thing to do is to just forget them for awhile. I suggest that is not true. Each one of these new pieces of technology is not likely to outmode Mr. Gutenberg's printed book. What is really exciting about it all is not that you now understand all about satellites and can start worrying about them, but where all these new things will come together.

There are three major threads that are going on simultaneously in the technology of communication. First is the cable, which you have devoted yourselves to for the last few days. It will break things out of the mode of a limited number of television channels.

The second is one you heard about from Lou Early tonight and that is communications satellites, and I suggest that the one thing you want to carry away from this meeting is the idea that communication satellites are distance-independent and that makes it possible to leap vast distances at a single bound. The point is that the cost by satellite of communicating between Africa and North America is no different than that between South America and Europe or any other two points. You bounce off a satellite 22,000 miles above the equator and back down again, and there is a cost involved there, but once that cost is met, it is the same whether you bounce it between Los Angeles and Denver, or Los Angeles and New York or Baltimore.

The third one that we have not talked about very much is the cassette revolution. You have seen examples of videotapes; you've heard about other types of recording devices. The great advantage of a video cassette is that it is a device very much like the book, an off-line, on-demand system. It is not something that you are plugged into the way you are with cable. Russ [Shank] made one illusion to a possible interface, when he talked about the great information jukebox. Somehow there needs to be some kind of storage device by which, through the cable, via the satellite, you can have access to the kind of information you want.

Another thing we touched on the last couple of days is the ability of the machine to record and store information for you. It is now possible to transmit a whole series of pages by video just as you transmit a whole series of television pictures faster than you can see them as they pass by, 30 times a second. So you put that on videotape and then you can access the videotape one frame at a time, and have an instant delivery of a major multi-page document. So what I'm trying to suggest quite seriously is that if you put all of these pieces of technology together you can begin to see how, in combination, they may get us precisely to that point of network design, information utility, access to information by anybody wherever he may be that Russ suggested in tonight's major address. So please don't absorb CATV and then put it aside in expectation that the satellite will soon be here to replace it because I don't think any one of these is going to replace the other. All of them in combination are going to be factors that multiply the effectiveness of any of them singly.

Discussion

Question: Could you explain what "common carrier" means?

Norwood: Basically, the common carrier concept not only has to do with communication, it has to do with such carriers as air lines and the railroads. Under common carrier law, the carrier has no control over the content. I think that in the long run, five to ten or more years hence we may see cable evolve into a common carrier. The Communications Satellite Corporation is a common carrier. It must accommodate all customers that come to it with traffic. In fact, COMSAT is a carrier's carrier. But you might deal, as librarians, with one of the retail carriers with which COMSAT deals, the telephone company, Western Union and a number of other like entities.

The second thing about common carriers is that they must accommodate everybody on the same basis. This goes back to the days in railroad history when there was a discriminatory rate scale. And under common carrier doctrine, you cannot do that; everybody has to pay according to a published rate. Many common carriers have a sort of natural monopoly in the field, and they operate on a doctrine of regulation which guarantees them a fair return on their investment, something that is not always good.

Early: It doesn't guarantee a return, but it establishes a maximum.

Norwood: This is computed on what is called a rate base; the amount of investment that is made in the system itself, and that rate base has to be approved in the case of communication carriers by the Federal Communications Commission. This is one reason, as it was stated before, that the telephone company can spend enormous amounts of money putting cables across the Atlantic Ocean, even though that is not the most economical thing, because if they are allowed a maximum of 8 percent return on their investment, the more money **you** invest, the bigger the 8 percent becomes.

I didn't talk much last night about the widely leaked report of the President's Cabinet Committee. The President's Cabinet Committee wants to reduce the cost of channels to put cable on something very close to a common carrier basis. That means no free channels. It does mean that the channels that you want are going to be available at a low cost, and sometimes the difference may not be as large as it would appear to be. I do not think the cable operators are ready for that. In fact, we librarians are probably not ready for that. The general problem in the industry is that it has not evolved that far. All of the people in the cable industry, and according to rumor, the Cabinet Committee, and the FCC feel that the cable industry is not ready for common carrier status, because the industry, particularly in major metropolitan areas, is still so new that nobody knows what will happen.

Question: Is a company or industry which has common carrier status excluded from programming? If cable were made a common carrier, it could have nothing to do with programming?

Norwood: That is right. The cable owner would be excluded. This has been an ambivalent situation for a number of years. For a while they were trying to exclude the cable owner from engaging in local programming, and now they are trying to require he engage in local programming. The situation in the last few years has been that one of the public services that cable represents is for television at the local level. The Philadelphia stations cover a major market that covers large parts of Pennsylvania, southern New Jersey, and Delaware. Programming for Germantown is one drop in the bucket, but a cable system in a community would have an opportunity for local programming, and the Commission is talking now of requiring the cable operator to do that. Under common carrier status, the cable operator would be disallowed from doing any local programming.

One of the things under consideration is that excess channels are to be available under a term that really has no legal status, called contract carrier basis. There the cable operator would either supply voluntarily, or be required to lease access to those channels he doesn't make available to government, education, and public access, to other parties who could come and also make use of his system. As far as the big brother image is concerned, it is not a serious problem at this stage. Clearly there is going to have to be some protection, but then there are other questions raised that are much more immediate. For example, there could be a variety of confidential information being broadcast where the thing that Ralph [Smith] talked about appears. It would require some protection against eavesdropping, but even the simplest kind of arrangement involves some kind of proprietary interest. People enrolled in a class and paying so much per unit would need some kind of mechanism to keep other people from dropping in on the class.

These kinds of things will come up soon. As far as invasion of privacy is concerned, the cable may have the capability of transmitting video back up through the wire. If you were one of the 100,000 people on the cable, somebody is going to have to separate your image out from a double exposure raised to 100,000 times. And secondly, the cable doesn't see you. It requires a camera on the other end.

There have been experiments undertaken, designed to use two-way capability in terms of the simplest and least controversial areas such as traffic control. In a number of cities you drive down the freeway and there are strategically-placed cameras that measure the amount of traffic that's going through. Detroit, for instance, has this. That's usually done on return capabilities that are leased from the telephone company, but if you had a metropolitan cable system, you might use the cable as a means of carrying that information back.

In New York, in a CATV system that is run by Teleprompter, there is some experiment with running cameras in high crime areas on light poles and in other places to watch for any violations of law—a mugging or a robbery—or even minor disturbances, so the police can send someone out immediately. That doesn't represent an intrusion in your living room, but to a lot of people it does represent an intrusion into the neighborhood. That kind of general surveillance in a neighborhood, a downtown area or whatever it might be, does raise some serious questions that are open to debate. And there are no easy answers to whether that is indeed an invasion of privacy, or a protection of life or property, or both. We will have those kinds of problems. I understand that in the New York experience it wasn't successful from a technical viewpoint, and so the issue never really got to the heart of the matter.

I'm sure that you all know there's been great opposition to pay television on the cable, but I am prepared to predict it will be here very shortly; by next year it will be a growing industry. There has been objection to it on behalf of a group called the "Committee to Save Free Television," a group of public-spirited people who want to make sure that commercial television is available and that the programs you now get free you are not, a year from now, charged for. Those people happen to be a national association of theater owners. They were not very interested in 1948 in saving free television.

There is another consideration concerning the invasion of privacy, however. With upstream capability, such as shopping by wire, one of the things that the broadcasters are very much interested in is instant ratings. All homes would be sampled by built-in devices to discover how many homes receive one program or the other. You may know that even in audience research done back in the days of radio when they used coincidental telephone surveys or other devices, and they asked how many people were watching The New York Philharmonic on Sunday afternoon vs. how many were watching the football game, the audience rating systems depended upon people giving voluntary answers, or keeping a diary or telling over the telephone what they were watching; programs like the New York Philharmonic always got better ratings by telephone than by the Nielsen system which depends on a mechanical device that records what you're really watching.

Networking Via Cable

[Further discussion by participants centered around two-way capability for local cable systems and opportunities inherent in connecting institutions (e.g. libraries) directly via cable, thus creating a local information transfer network which could be connected via satellite or other broadband link to similar networks in distant cities.]

Conference Summary

Preceding the Conference Summary, participants divided into four groups, according to the following categories: Group A) have no cable—just beginning: Group B) have old cable system—how to improve; Group C) in the midst of negotiations—pitfalls and successes; Group D) have cable—what do we do with it. With the assistance of resource people, participants discussed common problems and shared experiences. Reports from each group are incorporated in the Conference Summary.

Frank Norwood, Moderator: I'm going to ask members of the various panels to summarize for us whatever conclusions they feel their groups reached. In doing so, I would ask them to bear in mind what seems to me the overriding question at this point: "Where do we go from here?"

Mattie Humphery, Group A: One of the things that we discussed in Group A was the preliminary steps that should be taken in those areas where cable has not yet arrived. The first thing to be done is for interested parties to talk the matter over with local officials in order to determine the extent to which the city charter or local ordinances have to be changed in order to accommodate cable. The next thing is to open discussions with cable operators in order to let them know how they would be expected to function within the context of the community in question. Then there are the necessary economic considerations having to do with pricing, marketing areas, and overlapping franchises. At that point, the situation is like having several different supermarkets wanting to open branches in your suburb at the same time and expecting you to help decide what kind of items they're going to stock or what kind of parking facilities they're going to have. Of course, there's a difference. Supermarkets are strictly economic ventures, but libraries are supposed to reflect the kind of human expression and concern that focalize life. Librarians have the opportunity today to help define what community means in any given location. But so far they haven't taken advantage of this opportunity. And local officials, in particular, need this to be done for them; otherwise, they end up being fooled by various conglomerates just posing as communities. Find those people in your community who have been involved with the poverty program, or the model cities program, or the youth core program, who have dealt with Title I, Title IV, and various other compliance acts. Talk to the people who have had to struggle with the laws' confusions. They'll help you as librarians to determine what the community is, because anyone who has survived dealing with those intrusions into community, and who still is willing to talk with the representative of any institution—even a library—such a person is a bona fide community type.

Louis Early, Group B: We started by asking ourselves, "What is it that the libraries want?" And all of us agreed that, probably, the thing they most want is their own self-preservation. So the next question we asked ourselves was, "How best can the libraries go about assuring their self-preservation?" And we agreed that the best way was to find out what the community wants. That isn't going to be easy, but if the libraries want to be more effective in the community, that's what they're going to have to do. The libraries want to become, once again, a community focal point. I think it's fatuous of them to suppose that they are still such a focal point. They aren't, not any more. But they can be again, and one of the things they have to do is realize that their corporate objectives should be secondary to community objectives. Once that's realized, then it becomes obvious that the libraries have to start offering the community something different from what they've been offering it. That's where cable seems to come in. But when it comes to cable, the libraries have to make sure that they're not getting in over their heads. They will be if they try to use cable simply for doing what they've always done. That's why they shouldn't even think about cable in terms of one-shot affairs. There has to be a continuing program if there's going to be any reasonable community support.

Let me just give some idea of the complexities surrounding cable television. Suppose your local cable system needs improvement. The first thing you have to find out is what exactly the necessary improvements are. Is it the system itself that needs improvement, or is it the services that it delivers? If it's the system itself, then you have to ask yourself why the cable operator himself hasn't made the improvements, since it's obviously in his best financial interest to do so. Take a look at your local ordinance. Does it impose upon the operator constraints that prevent him from making necessary improvements? Find out the length of the franchise, and have a good lawyer review the franchise to determine what the company's obligations are. Maybe he can't offer you more channels because he hasn't got any.

After you've looked at the ordinance, then go to the cable company. Ask him why he hasn't made these improvements you think are so necessary. I'm thinking principally now of improvements in equipment, not improvements in services. He's more likely to be equipment-oriented than service-oriented. Is it lack of capital that has prevented him from getting additional equipment? If so, then what exactly is his financial position? Does he have an adequate customer base or advertiser base to warrant doing the things that you want him to do? Remember the profit motive. If you can convince him that what you're proposing will increase his profit, you'll have no problems at all.

Norwood: That's very useful advice. Most of us, I suppose, find ourselves in areas where cable has not yet arrived, but it's useful to know something of what you can do if your community has a cable system already.

Arnold Sparr, Group C: Our group arrived at three basic conclusions. The first was that this conference has performed an invaluable service by providing those in attendance with the knowledge necessary for confident negotiation. When you go home, you're going to find out that you know a good deal more about cable than the municipal officials you have to deal with. And they're probably a[illegible] seek your help accordingly.

G[illegible] felt another valuable point was that members of the educational community should, from the very beginning, involve themselves in the planning process in their community. In this regard, I should point out that although we've stressed the programming aspect of cable television, there are other aspects also.

A third essential point brought out was that the educational community should not collude with any cable operator in trying to get a franchise. Base your recommendations on clearly perceived needs, and make sure that the municipal officers take these recommendations into consideration when they draw up the franchise. Then leave it up to the cable operator to decide whether or not, under those circumstances, it would be profitable for him to come in.

We noted a couple of other things also. One was that, with respect to access, capacity, and so on, the problems are the same all over the country. Another was that there's a constant political aspect to all this, and it's naive to overlook it.

Richard Gross, Maine, Group D: That's quite an order. What we discussed in Group D was what to do with cable once you have it, and we came up finally with five recommendations. First, before librarians start drawing up plans for programs, they should first determine what the specific needs of the community are. Second, in order to facilitate programming, a complete inventory of the community's resources should be made. Third, in planning the use of channels and in developing programs, interlibrary cooperation on the one hand, and cooperation between libraries, public schools, colleges, and special libraries on the other, are both essential. Fourth, detailed knowledge should be had concerning the sources of funds and the levels of cost. Fifth—and this, we feel, is the most important of our recommendations—efforts should be made to obtain a grant for the establishment of a national clearinghouse for information of all kinds.

Brigitte Kenney: I think it should be made clear that in discussing an inventory of community resources we were thinking specifically in terms of programming; the resources we would be interested in learning about would be those that were available in the community and that we could use as program material. We were not thinking of a general inventory of all community resources.

Norwood: I'd like to express one final thought. We've talked a lot about cable and cable programming, but we haven't given a good look at cable as a broadband communications device. That's something that deserves a lot more attention than we were able to give it, because it provides an opportunity for using cable technology as a way of enhancing and augmenting existing cooperation among library systems. If we can have a video reference system in Wyoming, so that people at home can use cable to find information, why can't that same technology be applied at an even more sophisticated level among various library systems? This could be done perhaps on a closed circuit basis.

And what about the possibility of telefacsimile? I understand that the library community has been largely disappointed with the experiments that have so far been done with telefacsimile. The facsimile has usually been too slow, the resolution has been poor, and in those areas where special broadband circuits had to be ordered from the phone company, it is enormously expensive. But I suspect that with a broadband cable system, you might be able to provide a telefacsimile system that would give high speed and high resolution and that would use only that part of the bandwidth for which the cable operator had no use.

Hoyt Galvin, North Carolina: My primary concern is still good programming. I believe that we must have quality material. And I'm afraid that I shall leave here without having learned what we should be doing in the area of programming.

Norwood: All that I can say is that I think it would be wrong to go home wondering how the library can fill a channel. I don't think that's what your responsibility is, and I don't think that's where your opportunity lies. I think the answer to your question is, "Look around." There are plenty of programs out there. We saw people do programs who never thought they would be able to. I think that what you ought to do is get together with all those people who don't ordinarily come into your library. Get them thinking about what kind of programming you might reasonably be expected to do; separate the good ideas from the bad, and I don't think you'll have any trouble making sensible use of the channel capacity that's available to you. Once you've filled up the channels that are available to you, the FCC regulations provide that the cable operator has to get you some more. But why bother worrying about what you're going to do with channels fourteen and fifteen until, by means of consistent programming, you've built an audience for the channels now available to you?

Alice Cahill, Massachusetts: I'm interested in what's going to happen after this meeting. As you know, there's an ALA Telecommunications Committee. It seems to me that if we feel there should be some kind of follow-up to this—a newsletter, a clearinghouse, or what have you—then we should communicate this to the Committee, which could probably give us ideas on how to get a grant, or how the whole thing can get started.

Norwood: Let's take that up with the Chairman of the Telecommunications Committee herself.

Kenney: I'm not sure what I can say at this point. I confess that we've been struggling with the problem of a clearinghouse for a year now, and have tried desperately to find a solution for it. I talked the matter over with several persons during this conference, and these conversations were enormously beneficial to me, so that now I think I have some idea of how to get the word out.

Margaret Cleland, Connecticut: Various members of the Institute have suggested, and I move that we offer a resolution* calling for an information clearinghouse on cable for librarians, in the form, perhaps, of a newsletter, to be established and supported by the ALA or some other apporpriate organization.

Norwood: I'll second that.

Kenney: The resolution has been seconded. How many are in favor?

Audience: Aye (unanimous).

(Adjournment)

*This resolution was passed so that librarians throughout the country might be better informed about the problems and opportunities inherent in cable television for librarians. Since the Institute, the Director has been working to bring this about. The American Society for Information Science has agreed to publish such a newsletter through its publishing department. The first issue should be available in the Spring of 1973. Start-up money was obtained from the John and Mary Markle Foundation to produce the first, a promotional issue, to be widely distributed free to librarians throughout the country. Based on response to this first issue, a decision will be made to continue publication if subscriptions are sufficient to warrant it. Inquiries should be addressed to Mr. J. I. Smith, Associate Director, American Society for Information Science, 1126 Connecticut Avenue, N.W., Washington, D.C. 20036.

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Mr. Early received his education at North Carolina State University and UCLA. He joined the staff of the RAND Corporation as a member of the Cost Analysis Department, where he coauthored several publications pertaining to military, government and commercial communication satellite systems. Mr. Early joined the Communications Satellite Corporation in July 1963, where he initially served as manager of the Engineering Economy Department. He was responsible for the economic analysis of program alternatives, cost studies, and rate and tariff background studies.

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Mr. Sparr graduated with a Library Science degree from Long Island University. He thesis, entitled Implications of Cable on the Schools of Nassau and Suffolk Counties, surveyed the CATV franchises and ordinances in those two counties to determine the benefits to be received by schools and libraries. As Chairman of the CATV Committee of the Long Island Educational Communications Council, he has helped negotiate several franchises. He is also a member of the FCC/CATV Committee of the New York State Educational

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A GLOSSARY OF TERMS
FOR CABLE TELEVISION
AND OTHER BROADBAND COMMUNICATIONS

Compiled by Merry Sue Smoller

Revised 1972

This glossary is not intended to be an exhaustive vocabulary of cable television and broadband communications terms. The terms and definitions here presented must necessarily be incomplete because of the rapidly growing and changing vocabulary used by those engaged in the field. An effort has been made, nevertheless, to include and define those terms in general use that might be unfamiliar to persons outside the field of telecommunications.

The definitions have been derived from a wide variety of sources. Among the most helpful were:

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The compiler will welcome suggestions of additional terms to be included in some future edition of the glossary, new or more accurate definitions and assistance from any source. Correspondence may be addressed as follows:

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GLOSSARY

access--The ability or right to use cable systems, usually to originate programming.

access cablecasting--Services provided by a cable television system on its public, educational, local government, or leased channels.

access channels--Government, education, public or leased channels carried on a cable television system. Also known as non-broadcast channels. See also government and educational channels, public access channel, and leased channels.

additional signals--According to FCC regulations, signals that some systems may carry in addition to those required or permitted as minimum service or mandatory carriage. See carriage rule.

aerial plant--Cable that is suspended in the air on poles that are often leased from the local telephone or power company.

alternate video--See guerilla television.

amplifier--A device, consisting of electrical components used to increase the power, voltage or current of a signal, inserted in the cable at least every 3,000 feet to compensate for signal losses on the cable network.

attenuation--The decrease of signal strength as it progresses from the source to receiver. It is a function of the transmission medium, distance, and frequencies being transmitted.

augmented channel system--A way of gaining more VHF channel capacity on a conventional single cable system through the installation of subscriber set-top convertors.

bi-directional system--See two-way capability.

blue sky--The potential of cable television rather than the present actuality; predictions of future uses and applications of cable television focusing on the medium as service rather than entertainment oriented. Often the term carries a perjorative connotation.

branch--A smaller section of cable leading from the trunk past subscribers' homes.

broadband--Frequency bandwidths above one megahertz. Broadband communications systems are communications systems that carry a wide frequency range such as broadcast television, cable television, microwave and satellite services. Also known as wideband. See also narrowband.

broadband communications network (BCN)--A concept requiring a bi-directional, switched, technologically improved, highly reliable, minimum 300 megahertz bandwidth cable system utilizing sophisticated home terminals (with auxiliary equipment such as hard copy printers, alphanumeric keyboards, frame grabbers) capable of interacting with the system's central computer. Separate distribution systems could be inter-connected by microwave or satellite relaying. In addition to entertainment television, a BCN could provide such services as video telephone, computer data exchange, electronic mail, two-way education, meter reading, shopping by TV, two-way burglar alarms, on-demand special information, electronic newspapers and magazines, library services, polling, etc. See also wired city.

broadcasting-satellite service--A method using a satellite to transmit or relay signals (e.g. broadcasting programs) directly to the general public, either to receivers in individual homes (broadcast satellites) or to community receivers intended for use by a group of the general public at one location (distribution satellites). Also known as the direct reception mode of reception. See also satellite communication.

cablecasting--Television programs originated by a cable television system, and distributed over the cable system, rather than through the air as in broadcasting.

Cable Television Information Center (CTIC)--A non-profit service of the Urban Institute, Washington, D. C. Funded primarily by the Ford Foundation, it was established in January 1972. Its principal aim is "to provide policy makers in local and state governments with the information and analytical tools required to make franchising decisions for cable television." Executive Director: W. Bowman Cutter, 2100 M Street, N.W., Washington, D. C. 20037.

cable television system (CATV system)--Any facility that, in whole or in part, receives directly or indirectly over the air, and amplifies or otherwise modifies the signals transmitting programs broadcast by one or more television or radio stations and distributes such signals by wire or cable to subscribing members of the public who pay for such service, but such a term shall not include (1) any such facility that serves fewer than 50 subscribers, or (2) any such facility that serves only the residents of one or more apartment dwellings under common ownership, control or management, and commercial establishments located on the premises of such an apartment house. In general, each separate and distinct community or municipal entity (including single, discrete, unincorporated areas) served by cable television facilities constitutes a separate cable television system, even if there is a single head end and identical ownership of facilities extending into several communities.

carriage--The carrying on the cable television system of a program being broadcast by a television broadcast station.

carriage rules--FCC rules stipulating what signals a cable system must and may carry. The FCC requires a cable system in a given community to carry as minimum service, on request of the appropriate station, the signals of all television stations (including translator, educational, and significantly viewed stations) licensed to communities within 35 miles of the cable system's community. Systems located in top 50 markets must also carry Grade B signals of educational television stations. Systems in smaller television markets must also carry the Grade B signals of both educational television stations and stations in other smaller markets. Systems located outside definable markets must also carry all Grade B signals. As additional signals, FCC rules permit cable systems in the top

50 markets to carry signals of at least 3 network and 3 independent stations; those in markets 51-100, the signals of at least 3 network and 2 independent stations. All of the systems in those markets, in addition, are entitled to carry 2 distant signals, regardless of whether they are needed to provide the specified minimum. Systems in markets below the top 100 are limited to the carriage of 3 network signals and 1 independent. Those outside any definable market are not limited in the number of signals they can carry. Cable systems are required to carry all local educational stations. If there are no local educational stations, they may import the signal of the closest one. As many foreign language stations may be carried as desired.

Carter Mountain case--Carter Mountain Transmission Corporation v. FCC (1963). Landmark in the history of CATV since it is the first time the FCC actively asserts its jurisdiction over CATV, by regulating systems utilizing microwave. The U.S. Court of Appeals for the District of Columbia upheld the FCC's contention it could withhold permission for use of a microwave relay system serving CATV systems where such use could be proven competively harmful to a TV station to the extent of perhaps driving the station out of business. Prior to this time the FCC held a hands-off policy in regard to CATV operations allowing development of the industry without restriction.

cascade--The operation of devices (usually amplifiers) in sequence in a cable system with the output of one device feeding the input of the next.

cashless society--A concept based on the widespread use of electronic banking, a proposed BCN service by which a subscriber pays a bill from his home terminal with instant transfer of funds to the seller's bank account.

central distribution center--A building centrally located within a community in which the cable system facilities for local programming production are contained. It is connected to the head end by a main feeder cable which brings distant signals to the central distribution center. Here both distant and local signals are processed and sent out over the main trunk cable.

certificate of compliance--Document giving approval for a cable system to carry broadcast signals after meeting all of the FCC requirements. All new systems must have a certificate of compliance in order to begin operations. Existing systems must obtain one from the FCC before adding new signal carriage and at the end of the current franchise period or March 31, 1977, whichever comes first.

channel--The segment of the radio frequency spectrum to which a television station is assigned or to which a television camera is tuned when transmitting via radio frequencies. Each television channel requires a bandwidth of 6 megahertz.

channel reuse--Trunk line routing planned so that there is a common point of trunk/sub-trunk feed for each neighborhood. A program on a single channel is erased, or totally deleted, when the trunk crosses the boundary into a new neighborhood, leaving the channel free to be reused. A new program of truly local origination could be inserted at that point to serve that neighborhood, and at the next boundary the process would be repeated.

Class I cable television channel--A signalling path provided by a cable television system to relay to subscriber terminals television broadcast programs that are received off-the-air or are obtained by microwave or by direct connection to a television broadcast station.

Class II cable television channel--A signalling path that is used for carriage of signals that have not been broadcast (ie. local origination) and are intended to be picked up by a subscriber without use of an auxiliary decoding device.

Class III cable television channel--A signalling path used for carriage of signals that are intended to be received by equipment other than a television receiver or by a television set only after decoding and converting.

Class IV cable television channel--A signalling path provided by a cable television system to transmit signals of any type from a subscriber terminal to any other point in a cable system.

closed-circuit--Any transmission method by which reception is not available to the general public. The receiving equipment (often special apparatus not generally available) is directly linked to the originating equipment by cable, microwave relay, or telephone lines. Closed-circuit television (CCTV) is designed to be beamed within a given area that is usually much smaller than a network or local station's territory. Extensively used for monitoring in hospitals, police stations, prisons, etc.

coaxial cable--The special kind of wire usually used in cable television systems. It is called coaxial because it consists of two conductors, one inside the other and having a common axis. Surrounding the inner copper, or copper-sheathed aluminum, wire is a plastic foam insulating layer which is encased by a jacket of seamless aluminum or braided copper wire covered by a durable plastic sheathing. An electromagnetic field is set up between the center wire and its surrounding wire which retains signals within it, thus permitting the cable to carry more signals with less leakage.

common carrier--(1) Common carriers are those that hold themselves out or undertake to carry persons or goods of all persons indifferently, or of all who choose to employ them. (2) Common carriers are communications services that are available to the general public for transmittal of private messages, ie. television microwave relays, telephone, telegraph. The Communications Act of 1934 singles out broadcasting for exclusion from the category common carrier. Common carrier concept applies to business enterprises of such a character that public policy requires their services to be made available to all on a basis of equality. A carrier is supposed to concern itself not with the nature of the traffic it carries but merely with supplying the facilities for carrying it. Carriers occupy a position of limited monopoly and are licensed either by a state or federal agency, depending on whether or not the service is intrastate or interstate in scope. The license carries some protection from competition in return for which the business of the licensee is closely supervised by the licensing agency that can consider rates and services provided and determine reasonable profits.

communications-satellite service--A method using a satellite to relay signals (e.g. broadcasting programs) to earth stations for direct or indirect distribution by terrestial transmitting stations. Such relays employing satellites are particularly suited to inter-connecting cable systems through intercity links extending across the continent or overseas. Also known as the retransmission method of reception, or, as relay satellites. See also satellite communications.

community antenna relay service (CARS)
A means of obtaining distant reception through microwave relay links. A broadcast receiving antenna location is established within the good signal reception area of a station. This signal is

demodulated and the video and sound are multiplexed on a frequency modulated microwave carrier, then relayed to a distant community. Microwave links can be repeated if necessary (usually every 30-35 miles depending on the terrain and distance, The final receiver, at a cable head end, must demodulate the video and sound and then modulate these program signals into the form suitable for a conventional home receiver.

community antenna television system (CATV)--A system which receives programs broadcast by licensed TV stations and distributes them by wire to individual customers at a flat rate. During the early stage of cable television systems (1950's), the characteristic practice was to set up one big antenna that a whole community would use. Although the term is often used interchangably with cable television system, CATV implies the earlier, less sophisticated type of system, usually limited to a 12 channel capacity.

contour--The distance of a broadcast station's service area, an irregular shape surrounding the transmitter which is determined by signal-strength measurements in the field. Grade A contour: the calculated line surrounding an area in which a good picture is normally available at least 90% of the time at the best 70% of receiver locations. The Grade A contour extends about 38 miles for UHF stations with average power and 36 to 44 miles for VHF stations at maximum power, assuming no interference. Grade B contour: the calculated line surrounding an area in which a good picture is normally available at least 90% of the time at the best 50% of receiver locations. The Grade B contour extends about 50 miles for UHF stations with average power, and 70 to 80 miles for VHF stations at maximum power, assuming no interference. Principal Community contour: the area within which the signal has the strength required by FCC rules to be afforded the principal community to which the station is assigned. The principal community contour extends about 31 miles for UHF stations with average power, and 28 to 36 miles for VHF stations at maximum power, assuming no interference.

convertor--A device for changing the frequency of a signal. Head end convertors change signals from frequencies at which they are broadcast to clear channels or from UHF to VHF, since cable cannot carry UHF. Set-top convertors change signals from the frequencies at which they are sent over the cable (sometimes above VHF) to channels that the television set can pick up, or to a clear channel. The set-top convertor (also known as a subscriber convertor) extends the capacity of the home television receiver beyond 12 channels.

dedicated channel--A channel (in use or available on demand) solely devoted to a particular type of purpose or service, ie. education, police, meter reading, library.

dedicated drop system--See hub-network switched system and switched system.

designated channels--Government, educational, and public access channels carried on a cable television system. The FCC ruled, in its June 1972 Reconsideration of the Third Report and Order, that no additional designated channels (beyond the original one educational, one government, one public access) can be carried or reserved on a cable system without FCC approval based on petition and demonstration of need. See also government and education channels and public access channel.

discade system--See hub-network switched system and switched system.

discrete address--See point-to-point service.

distant signal--The signal of a television broadcast station beyond the Grade B contour of that station. Generally, signals originating at a point too distant to be picked up by ordinary television reception equipment.

distribution system--A collective term for the part of a cable system used to carry signals from the head end, or the receiving point of the cable system, to the subscriber's receivers.

downstream--The direction in a cable system from the head end to the terminals. See also upstream.

drop--A small branch of cable which connects the antenna terminals on the back of the subscriber's television receiver to the feeder cable in the street.

dual cable system--See multiple cable system.

duplex--A cable system with two-way capability.

exclusivity--The contractual right to be the sole exhibitor of a program in a particular area during a particular period of time. FCC rules prohibit cable systems in the top 50 markets from carrying any syndicated programming for one year after its first appearance in any market and then for the life of the contract under which it is sold to a local station. In markets 51-100, different kinds of nonnetwork material is protected for varying periods of time up to two years.

facsimile--Printed material converted into electronic signals carried via the cable to the subscriber's terminal where they are reconverted into printed material.

Federal Communications Commission (FCC)--The FCC is composed of six commissioners and a chairman. They are appointed by the President and serve for seven year terms. They and their staff are responsible for the licensing and regulation of broadcast channels in the U.S. They are committed to the concept of locally-based stations, serving the interests of individual communities--and being responsive to the needs of these communities. Created by the Communications Act of 1934, the FCC has two definite jurisdictions: (1) Under Title 2 of the Act, in regard to common carriers such as microwave systems, telephone, and telegraph companies, the FCC can regulate rates and services. (2) Under Title 3 of the Act, in regard to broadcasters, the FCC has no responsibility to set rates or determine services in regard to rates. The FCC simply has the power to administer them as a public resource. Chairman: Dean Burch, 1919 M Street, N.W., Washington, D.C.

FCC First Report and Order (1965)--The FCC set forth general rules for microwave-served cable systems, including the carriage and non-duplication rules.

FCC Second Report and Order (March 1966)--The FCC asserted jurisdiction over all CATV systems and placed severe restrictions on the carriage of distant signals into the top 100 markets.

FCC Notice of Inquiry and Proposed Rule Making (December 1968)--Imposed a freeze upon major market penetration by CATV systems so that facts could be gathered about how to control penetration. The effect was to stifle further penetration into the top market areas where 90% of the U.S. population was located.

FCC Third Report and Order (February 1972)--FCC rules to regulate and promote the growth of cable television into the major metropolitan areas. Detailed regulations on distant signals, access channels, technical standards, regulatory relationships and other areas, based on a compromise agreement between White House officials, leaders of the film, cable and broadcast industries and Dean Burch, the chairman of the FCC. Effective March 31, 1972.

feeder--A comparatively short run of cable which may parallel the main trunk cable either forward, by doubling back from a junction, or branching off to serve a local area. Subscriber taps are put only on the short feeders to avoid the cumulative effect of these discontinuities on the trunk.

film chain--The equipment used to show film on television. Consists of a film projector, a slide projector, a multiplexer, and a television film camera.

Fortnightly case--United Artists v. Fortnightly Corporation (June 1968). Fortnightly Corporation was a CATV firm with systems in West Virginia. United Artists charged that the systems were rebroadcasting programs on which United Artists owned copyrights and that this was in infringement of copyright law. This became a test case in the Supreme Court when Fortnightly appealed lower court decisions in favor of United Artists. The Supreme Court found that CATV systems were not liable for payment of copyright royalties since "a CATV system no more than enhances the viewer's capacity to receive the broadcaster's signals" and "has little in common with the function of broadcasters" since "CATV operators, like viewers and unlike broadcasters, do not perform the programs they receive and carry."

frame grabber--A common term for the electronic device at the subscriber's terminal used for storing single television frames (e.g. a silicon storage tube or a modified video tape recorder) for display. Also known as a frame snatcher. See also single frame capture and time-sharing (2).

franchise--A commonly used term for an agreement between a cable operator and a local government setting out the specific rights and responsibilities of each for the construction and operation of a cable facility in a specific political subdivision. In granting a franchise to the cable operator, the community grants more than the right to do business. It grants the right to use public right of way and into private property. According to FCC regulations, a public proceeding must accompany the franchise grant; the franchise period should not exceed 15 years; the system must extend service to all areas of the franchise community where practicable; the system must begin construction within one year after the certificate of compliance is issued; franchise fees to the municipality (3% suggested) must be reasonable.

frequency bandwidth--The number of hertz (cycles per second) in the band; based upon the information transmitted and method of transmission.

full network station--A commercial television broadcast station that generally carries in weekly prime time hours 85% of the hours of programming offered by one of the three major television networks with which it has a primary affiliation.

government and educational channels--The FCC requires cable systems in the top 100 markets to set aside one channel for education use and one channel for state and local government use on a developmental basis. Upon completion of the basic trunk line, for the first five years these two channels will be made available free. After the developmental phase the FCC will determine whether to expand or curtail the free use of channels for such purposes. Only use of cable channel is free; production costs may be charged to users.

grandfathering--A method of protecting existing institutions from subsequent changes in regulations. Cable systems already in operation on the effective date of new rules are permitted to continue operation without regard to new technical standards or signal carriage requirements since it would be unfair to make them comply with a law that was written after they were built. Cable systems grandfathered by the FCC Third Report and Order (all systems in operation or authorized to carry signals before March 31, 1972) are required to comply with the new regulations by March 31, 1977 or on renewal of their franchise, whichever comes first.

graphics--All two-dimensional visuals especially prepared for display on television, ie. maps, charts, special illustrations, title cards.

guerilla television--Alternate video movement consisting of groups usually using portable 1/2 inch video tape systems to create an alternate information network (in contrast to the Establishment centralized networks to which they have been denied access.) Many of the alternate video groups cablecast their tapes over the public access channels.

hard copy--A permanent copy, usually printed on paper, of information converted from the electronic signals carried on the cable to the subscriber's terminal. See also soft copy.

hardware--Actual physical equipment, like cameras, recorders, antenna, and so on, as distinguished from materials and programming. See also software.

head end--The electronic control center, located at the start of a cable system (usually near or at the antenna site), where incoming television signals are amplified, filtered and converted, if necessary, to cable system channels.

hertz--The name of the unit used to describe the frequency of electrical signals, or the bandwidth required by such signals. One hertz equals one cycle per second; one megahertz equals one million cycles per second of electrical signal.

hub-network switched system--A type of system requiring that each subscriber terminal be connected to a switching center located nearby. All programs would have the same carrier frequency. A single channel converter at each subscriber terminal would provide usable signal for a standard television set. Channel selection would be by a telephone dial or pushbutton arrangement working back through the drop cable to the local switching center. Thus, only the channel dialed would be connected at that switching center to a particular drop cable. The problem of getting multiple programs on the same channel frequency to each local switching center requires a separate cable for each channel from the head end. This results in a hub-structured network (sometimes described as star-shaped), structurally similar to telephone networks rather than the conventional tree-structured cable network. Also known as a dedicated drop, switched, discade, or rediffusion system.

independent station--A commercial television broadcast station that generally carries in prime time not more than 10 hours of programming per week offered by the three major networks.

instructional television (ITV)--A television system used primarily for formal instruction.

instructional television fixed service (ITFS)--A television system operating at the 2,500 megahertz frequency set aside by the FCC for instructional television utilization. Special convertors are needed to receive the signal, and there is no two-way capacity.

interactive mode--A system that allows two-way communications, with each part of the system affecting the others. See also two-way capability.

leapfrogging--A practice by which a local cable operator imports signals from more distant stations by leaping over, or bypassing signals from closer stations. FCC regulations require systems importing distant independent signals from the top 25 markets to choose from one or both of the two closest such markets. Systems carrying a third independent signal are required to pick up a UHF station within 200 miles or, if such a station is not available, a VHF from the area. Where network affiliates are concerned, a system must afford priority of carriage to the closest one or, at the system's option, to the closest one within the state.

leased channels--According to FCC regulations, after cable systems in the top 100 markets have satisfied the priority of providing one free public access channel as well as the free channels for education and government they may make available for leased uses the remainder of non-broadcast use channels. If the public access, educational, and governmental channels are not being used, these channels may also be used for leased operation.

live--The direct transmission of a signal at the time of its origin. For example, the transmission of a studio program as it originates, rather than recorded and later transmitted.

local distribution service (LDS)--Short microwave relay systems that extend cable services up to 20 miles (the present cable system limit is 10 miles) to serve smaller communities or population clusters around a cable service area.

local origination--Programming produced by the local cable operator. The program content might be on a film or videotape produced elsewhere and sold or leased to a cable operator, or it might indeed be programs produced locally. According to FCC regulations, all systems with 3,500 or more subscribers are required to originate programming.

local origination center--A studio equipped with cameras, recorders, etc. used to produce community cablecasts within the cable system operator's franchise area. Often, but not necessarily, the studio is incorporated into the building including the head end.

local station--A television broadcast station which places a Grade B or better signal over the area in which the cable system operates.

major television market--The specified zone of a commercial television station licensed to a community listed as one of the 100 major television markets by the FCC in its Third Report and Order. This list is derived largely from the American Research Bureau's 1970 prime-time households ranking. 90% of the U.S. population lives in the major market areas. Also known as a larger television market or a top 100 market.

mandatory carriage--Signals that a cable system must carry in accordance with FCC regulations. See carriage rules.

microwave--(1) Extremely short waves on the order of 1,000 megahertz and higher. (2) A method whereby television signals may be transported from one place to another. See also community antenna relay system (CARS) and local distribution service (LDS).

Midwest Video case--Midwest Video Corporation v. FCC (June 1972). Landmark decision by the Supreme Court in which the FCC was sustained in its power to compel compliance to its cable regulations. Midwest Video Corporation had challenged the FCC 1969 rule requiring CATV systems with more than 3,500 subscribers to originate local programming. The federal appeals court in St. Louis had voided the program origination requirement on the grounds that it was beyond FCC authority.

minimum channel capacity--The minimum number of channels a cable system must provide in accordance with FCC regulations. Systems in the top 100 markets must provide 20 channel capacity (actual or potential). Also for each broadcast signal carried, they must provide an additional channel suitable for non-broadcast signals (Class II and III cable television channels).

minimum service--A minimum number of signals that, taking television market size into account, a cable system may carry in accordance with FCC regulations. See also carriage rules.

minor markets--See smaller television markets.

mixer--The audio control console in a television production studio.

modulation--The process whereby the original information (e.g. the picture from a television studio) is translated into radio energy for transmission through space. The message, whether picture or any other kind of signal, consists essentially of an energy pattern that can be translated and transferred from one medium to another, each capable of duplicating the pattern of amplitude and frequency of which the signal consists.

monitor--A special type of television receiver. It is not tunable to channels, and is used for viewing video tapes, or to display the picture transmitted by a live television camera.

multiple address--See point-to-point service.

multiple cable system--A system using more than single cable in its distribution system. For example, an existing 12 channel system can be enlarged to a 24 channel system by installing a completely duplicate plant, or dual cable system, which carries the same 12 channels but with different program material. At the subscriber's set would be an effective cable selector switch so that he could choose channels on Cable A or Cable B. Care would be taken at all other points of the plant to insure that none of the Cable A signals entered Cable B and visa versa. By extension, there could be Cable C, D, and so on.

multiple system operator (MSO)--A company that operates more than one cable television system.

multiplexing--More than one signal sent in the same channel without mixture. Division can be by frequency, time, or space.

narrowband--Frequency bandwidths below one megahertz. Narrowband communications systems are those that carry a narrow frequency range, such as telephone systems. See also broadband.

National Association of Broadcasters (NAB)--The national trade organization of the broadcasting industry (radio and television stations and networks). Founded in 1922, the NAB represents the industry before the FCC, Congress, and state regulatory bodies, and is responsible for instituting voluntary codes for radio and television which provide broadcasters with guideposts in programming and advertising practices. Offices: 1771 N Street, N.W., Washington, D.C. 20036.

National Cable Television Association(NCTA)--The national trade organization of the cable television industry. Chartered in 1952, it has an active membership of about 1073 CATV systems and 237 associate members (manufacturers and suppliers of CATV equipment and others having an interest in the industry). NCTA represents the industry before the FCC, Congress, state regulatory bodies and on technical television industry committees. 42 state and regional CATV associations work closely with NCTA although they are not officially affiliated. Offices: 918 16th Street, N.W., Washington, D.C. 20006.

network--The interconnection of two or more stations. Network broadcasting involves the simultaneous transmission of identical programs by a group of connected stations.

network programming--The programming supplied by a national or regional television network, commercial or non-commercial.

noise--The accidental, unintended, and normally unwanted components of information received or transmitted as electrical impulses. These unintelligible disturbances, which arise from the random motion of electrons due to internal or external effects, degrade the transmission of the desired signal. For example, snow (dancing black or white spots on the picture tube having no recognizable shape or period) is a form of noise created by thermal effects in the input circuits of amplifiers placed along the cable.

non-broadcast channels--See access channels, Class II, and Class III cable television channels. See also minimum channel capacity.

nonduplication--Not carrying on the cable system from another television broadcast station the same program being broadcast by a local television station. FCC regulations prohibit a cable system from such simultaneous duplication.

non-switched system--A common cable system design in which messages are sent to and received by all points on the system simultaneously.

Office of Telecommunications Policy (OTP)--Established by order of the White House, the Office of Telecommunications Policy aids in formulating the Administration's long range cable television policy; in preparing legislation for submission to Congress; and acting as a go-between in disputes between interested parties such as the FCC, the NCTA, and the NAB. Director: Clay T. Whitehead, 1800 G Street, Washington, D.C. 20504.

off-network programming--Shows that were originally shown on a network, but are now offered for syndication.

open-circuit--A broadcast transmission method in which the receiving equipment and programs are available to the general public.

ordinance--An official resolution by a local political body regulating an activity within the legally defined political subdivision. An increasingly common practice is for a local political body to pass an enabling ordinance to serve as a guide for potential franchise applicants. Such an ordinance sets forth the ground rules which any franchise holder would have to work under (ie. minimum standards of performance) and sets up a systematic procedure for applying for a franchise.

origination cablecasting--Programming (exclusive of broadcast signals) carried on a cable system over one or more channels and subject to the exclusive control of the cable operator.

pay cable--A leased channel concept that enables cable television subscribers to bring in closed circuit programs. Scrambled signals are sent over the cable that can be decoded only by the insertion of the proper key or card into a black box resting on the subscriber's TV set. The subscriber would be billed for such service in addition to the regular cable service charge. See also subscription television.

penetration--The percentage of people to whom cable is available who are actually subscribers.

Picturephone (trade name)--A system of transmitting video and audio information via a relatively narrow bandwidth involving digital encoding. Intended as a two-way system to enhance telephone intercommunication.

plant--The equipment in a cable system.

point-to-point service--A characteristic of a switched system which enables a sender to transmit a message (voice, video or data information) on the cable directly to the desired receiver(s) rather than to the general public. Point-to-point service can be in the form of either discrete address, from one point to another single point, or multiple address, from one single point to a number of selected specific points.

porta-pak--A relatively inexpensive, fully battery operated portable videotape recorder and camera. Commonly utilizes 1/2 inch videotape.

prime time--The point of peak viewership during the broadcast day. Generally considered the four hour period from 6 to 10 p.m. local time. According to FCC regulations, the five hour period from 6 to 11 p.m. local time.

production--The process of creating programs, including such phases as program planning, preparation, script writing, rehersal, and recording and/or live transmission.

program origination--Presenting a program on the cable system which has been originated by the system. In October 1969, the FCC, reversing its past position, permitted all CATV systems to originate their own programming. The FCC also required systems with over 3,500 subscribers to originate programming by January 1, 1971 and allowed all systems to carry advertising.

public access channel--FCC rules require that cable systems in the top 100 markets provide one free, dedicated, non-commercial, public access channel available at all times on a non-discriminatory basis. The system operator is obliged to provide only use of the cable channel on a free basis; production costs (aside from studio presentations not exceeding five minutes) may be charged to users. Also known as a soap box channel, or as soap box TV.

PubliCable--A consortium of individuals representative of various educational, public service, voluntary, and community groups concerned with cable communications, particularly its noncommercial possibilities. Established in 1971, the organization seeks to identify issues in cable communication and to provide information and assistance to varied public interest groups. Director: Dr. Harold E. Wigren, c/o Dr. Wigren. National Education Association, 1201 16th Street, Washington, D.C. 20036.

rediffusion system--See hub-network switched system and switched system.

redundant cable--The unused cable(s) in a multiple-cable system. These cables are capped off and reserved until the need for greater channel capacity or bi-directional capability arises.

resolution--The degree of detail in the image reproduced on the television screen.

retrofitting--The adding of additional cable to a distribution system after it has been installed. Often done to increase channel capacity, or to provide two-way capability.

satellite communications--A satellite placed at the right altitude where it can remain stationary with respect to the earth below it (synchronous altitude), can act as a communications station linking together a large portion of the earth's surface. See also communications-satellite service and broadcasting-satellite service.

signal--The coherent, significant, and intentional components of information (such as sound or picture) received, or transmitted, as electrical impulses. Signals are noted in terms of strength (voltage) and frequency (cycles per second).

significantly viewed station--Viewed in other than cable television households as follows: for a network affiliate, a station is considered significantly viewed if it is watched by three percent of the audience and at least 25 percent watched it for at least five minutes during the week; for an independent station, the rules require it to be watched by two percent of the audience and by at least five percent of the audience for at least five minutes.

single frame capture (SFC)--A method of capturing and holding a single television frame of pictorial or alphanumeric information retrieved by random access (or nearly so) from a central computer facility with data and video files, for display at the subscriber's terminal. Services possible through SFC (augumented with a hard copy printer) include electronic news, transportation schedules, consumer information, job availabilities, directories, library catalogs, dictionaries and encyclopedias, advertising rates and credit ratings for businesses, recreational games and slide shows, and electronic mail.

siphoning--A process in which cable systems take advertising revenue and programming away from broadcasting.

smaller television market--The specified zone of a commercial television station licensed to a community that is not listed as one of the major (top 100) television markets. Also known as minor markets.

soap box TV--See public access channel.

soft copy--Information displayed on the picture tube (cathode ray tube) of a television receiver.

software--The working materials from which a program is created that will be played out on a piece of hardware. The working materials may include scripts, written narration, audio or visual aids, etc. especially created or assembled for the production, as well as the knowledge of how to use the equipment.

Southwestern case--Southwestern Cable Company v. United States (June 1968). Set a major precedent in the regulatory history of cable television. In May 1967, the Ninth Circuit Court of Appeals decided that, in effect, the FCC had no jurisdiction over CATV. The FCC appealed the decision to the Supreme Court. The Supreme Court held "that the commission's authority over 'all interstate communication by wire or radio' permits the regulation of CATV systems."

structured dualism--A term for the sharing of the regulation of cable systems by the FCC and state and local governments.

subscriber--A person who pays an installation charge and monthly fee to a cable system operator for providing a connection to the cable system and for the programs and services carried on the cable.

subscription television (STV)--Programming or special services supported by viewers, as contrasted with the existing advertiser financed methods. A scrambled signal is sent either over the air or on the cable to be decoded through a special device at the subscriber's terminal. Viewers would pay only for programming or services which they selected. Also known as private channel television, pay-TV, or premium television. See also pay-cable.

switched system--A cable system designed with the capability to send messages (such as voice, video, or data information) to or from any individual point, or designated address, on the system. A switched system may be circuited switched where a direct transmission path is established between sender and receiver or message switched where messages are relayed to the receiver by switching centers in a store and forward manner.

switcher--In television production, a control that allows the selection of one image from any of several cameras operating simultaneously to be fed into the television display or recording system.

sync--Synchronization. The maintenance of one operation in step or phase with another, such as the simultaneous projection of picture and sound.

sync generator--Electronic equipment that supplies a common synchronized signal to a television production system using more than one camera insuring that they will all be in phase.

syndicated program--Any filmed or taped program sold, licensed, distributed or offered to television stations in more than one market for non-network broadcasting.

TV Pix case--TV Pix, Inc. v. Taylor (November 1968). An important case setting a precedent for the regulation of CATV as a public utility by a state. The U.S. District Court of Nevada upheld a state law allowing the Nevada Public Service Commission to regulate CATV. This decision was upheld by the Supreme Court in February 1970.

talent--The collective name for all persons, ie. actors and performers--professional or non-professional--appearing in front of the television camera.

television translator station--A station that picks up television signals off the air and rebroadcasts them without altering any characteristic of the signal except its frequency or amplitude. They usually serve remote areas that cannot support their own stations. FCC regulations require cable systems to carry signals from all translator stations in the cable community with 100 watts or higher power.

terminal--The equipment on the subscriber's end of the cable. This varies from a simple plate to which wires from the antenna outlet on the set are attached to sophisticated devices which might include converters, keyboards, videotape recorders, and mini-computers.

35 mile zone--The area within each market to which FCC regulations are applicable. The area is defined as a zone of 35 miles radius surrounding a specified reference point (often the main post office) in each designated community in the market. The purpose is to carve out the market's central city, suburbs, and nearby communities on which stations generally rely for their principal

audience support. All cable systems must carry the signals of all stations licensed within 35 miles of the cable system's community.

time-sharing--(1) Time segments on a dedicated channel shared by various groups such as schools, libraries, police stations, rather than a separate channel designated for each particular use. (2) Sharing of channel time by sending one transmission of a picture (a frame), capturing it on special terminal equipment (frame grabber) for local reproduction and viewing and releasing the remaining available 1799 frame transmission opportunities in that same minute to serve someone else.

top 100 markets--See major television market.

transmission--Sending signals from one point to another.

tree-network--The conventional cable distribution network that includes the cable and all the appurtenant devices necessary to carry the signals from the head end to each of the subscriber's terminals. It is a tree network where the product from the root is carried through the trunk and then through the branches to the individual stems which feed each individual leaf.

trunk--The backbone or main line of the cable system. This main coaxial cable carries signals from the head end to the extremities of the area served with the minimum possible number of amplifiers (generally 3-4 to the mile) and no subscriber taps.

two-way capability--Bidirectional transmission. A cable system capable of carrying information both downstream from the head end to any point in the network and upstream from any point on the network back to the head end. All downstream communications are delivered simultaneously to all subscribers, including even messages addressed to specific subscribers which are, however, recognized and accepted only by the properly addressed subscriber terminal. Upstream communications must be limited to one at a time per channel to avoid chaos. This is done by time-sharing in which each subscriber is alloted a time segment in which to transmit the information to the central collection point. A computer at the central point interrogates each subscriber terminal in turn by suitable address code. Upon receipt of the correct code, the addressed terminal transmits a stored message back to the collection point. The interrogation rate is fast enough to give the subscriber the impression of actually initiating the transmission of information. Under FCC regulations, all systems in the top 100 markets must have return capacity on "at least non-voice basis" by March 31, 1977.

UHF channels--The ultra high frequency part of the spectrum allocated for television broadcasting, comprising channels 14 through 83.

underground installation--A method of installing cable underground, as opposed to aerial suspension on poles. Becoming increasingly popular since it improves the appearance of the community; removes dependence on telephone and power companies; provides protection against weather variations.

upstream--The direction in the cable system from the terminals to the head end.

VHF channels--The very high frequency portion of the spectrum allocated to television, comprising channels 2 through 13.

video tape--Thin acetate or mylar type, coated with magnetic material, used to record and store video and audio information. There are five standard widths: two inch, used by television studios in quadraplex machines; one inch, often used by institutions with closed-circuit systems; three-quarter inch; half inch, used in many portable VTR systems; and quarter inch. Video tape is obtainable in two formats: (1) video cassette: the tape moves in a continuous loop encased in a container. (2) reel-to-reel: two reels move the tape from one reel to another. Usually connotes non-encased reels.

videotape recorder (VTR)--The videotape process works through a camera or other transmitter inputing a magnetic impulse onto a coated tape (which is much the same as audio tape). Because there is no chemical process involved, once the signal is recorded it is immediately ready for replay. Video tape is re-usable; it can be erased and re-recorded. Each reel or cassette is good for up to fifty different recordings with upwards of a thousand playbacks possible. The soundtrack is automatically synced to the image and has the same characteristics as regular audiotape recorders. Live feedback is available since a video camera attached to a VTR and feeding into a TV set will give a real-time image of whatever the camera is pointed at.

wired city--A concept in which a cable system would provide all of an urban area's telecommunication facilities. All television signals would be placed in two-way systems that would carry telephone and data traffic as well. Wired cities could be interconnected via satellite or microwave relay to produce a wired nation; internationally connected, a global village. See also broadband communications network.

zoom. The gradual changing of the focal length of a camera lens giving the effect of moving closer to or away from an object without moving the camera itself.